

Summary Report

Site 07GN1

Former Total Recoverable Petroleum Hydrocarbon Release

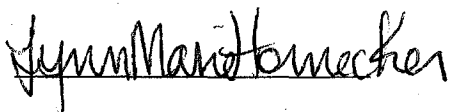
At Installation Restoration Program Site 7, Unit 5

Petroleum Corrective Action Program

Marine Corps Air Station, El Toro, California

16 November 2001

Prepared by:



Lynn Marie Hornecker
Project Manager

Southwest Division, Naval Facilities Engineering Command
BRAC Programs Office
San Diego, CA 92101-2404

TRANSMITTAL

Date: 16 November 2001

From: Lynn Marie Hornecker 

To: **Patricia Hannon**
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

Subj: Summary Report
Site 07GN1, Former Total Recoverable Petroleum Hydrocarbon (TRPH) Release
Marine Corps Air Station, El Toro

Transmitted as the attachment is a summary report for the recently conducted sampling activities at Site 07GN1 which is located within the investigation boundary of Installation Restoration Program (IRP) Site 7, Unit 5 (Open Dirt Area) at the Marine Corps Air Station, El Toro. Total recoverable petroleum hydrocarbons (TRPH) were identified in near-surface soil samples at Site 07GN1 that were collected during the Phase I Remedial Investigation of IRP Site 7, approximately 10 years ago. The Regional Water Quality Control Board, Santa Ana Region requested an investigation of the TRPH release at Sample Location 07_GN1 in their letter dated 16 February 2001.

The summary report includes the results of soil sampling activities that were conducted in October 2001, the observations from recent visual inspections of the site, and information pertaining to the buildings located near Site 07GN1. Soil samples were analyzed for volatile organic compounds, total petroleum hydrocarbons (TPH) as gasoline, TPH as diesel, and TPH as motor oil. The maximum TPH concentration was 140 milligrams per kilogram in a sample that was collected at the ground surface. Benzene and methyl tert-butyl ether (MTBE) were not detected at or above laboratory reporting limits in the soil samples.

Based upon the low concentrations of total petroleum hydrocarbons, the absence of benzene and MTBE at or above laboratory reporting limits, the absence of visual evidence of a release, and the historical use of the adjacent buildings, we are recommending that no further action status be designated for Site 07GN1.

Please do not hesitate to call me at (619) 532-0783 if you have questions pertaining to this transmittal.

SOUTHWESTNAVFACENGCOM
Code 06CC.LMH
(619) 532-0783/Fax (619) 532-0780

File: etrwqcbgwtechmemotrltrNov2001

Attachment:

Summary Report (Southwest Division, November 2001)

CF:

Dean Gould (BRAC Environmental Coordinator, MCAS El Toro) w/attachment
Project File (MCAS El Toro) w/attachment

Table of Contents

Section 1 - Introduction	1
Section 2 - Existing Information	1
Section 3 - Field Activities of August through October 2001	4
Section 4 - References and/or Sources of Information	6

Attachments

Attachment 1

RWQCB Letter dated 16 February 2001

Attachment 2

Technical Memorandum

Attachment 3

Site Assessment Report

Section 1

Introduction

The purpose of this Summary Report is to document the completion of the site verification activities at Site 07GN1, a former total recoverable petroleum hydrocarbon (TRPH) release site within the investigation boundary of Installation Restoration Program (IRP) Site 7 (Drop Tank Drainage Area Number 2), Unit 5 (Open Dirt Area) at the Marine Corps Air Station, El Toro. The site verification activities included the acquisition and review of historical records, visual inspections, and field sampling at Site 07GN1. The Regional Water Quality Control Board (RWQCB), Santa Ana Region requested an investigation of Site 07GN1 in their letter dated 16 February 2001 which is presented as Attachment 1 to this report.

Waste oil, paint, solvents, flammable materials, and equipment items were stored at IRP Site 7, and five units were investigated during the Remedial Investigation: Unit 1 (North Pavement Edge); Unit 2 (Old East Pavement Edge); Unit 3 (New East Pavement Edge); Unit 4 (Drainage Ditch); and Unit 5 (Open Dirt Area). A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision (ROD) for no action at IRP Site 7 was signed in June 2001. The Base Realignment and Closure Cleanup Team (BCT) agreed that additional investigation of the area at sample location 07GN1 (known as Site 07GN1 in this document) would be conducted under the Petroleum Corrective Action Program with oversight by the RWQCB Santa Ana Region.

Maps of the vicinity and sampling locations at Site 07GN1 are presented as Figures 1 and 2. Additionally, photographs of Site 07GN1 are included.

Based upon the low residual concentrations of total petroleum hydrocarbons that were detected during the sampling activities of October 2001, the absence of benzene and MTBE at or above laboratory reporting limits, the depth to groundwater, and the absence of visual evidence of a release on the ground surface, it is recommended that no further action status be designated for Site 07GN1.

Section 2

Existing Information

In order to prepare for field sampling activities, existing historical information pertaining to the vicinity of Site 07GN1 was collected and reviewed, and visual inspections of the site were conducted. The following paragraphs describe information from property records, previous investigations, visual inspections, and environmental compliance program management documents.

Visual Inspections

The vicinity of Site 07GN1 was visually inspected by Navy representatives in August 2001, prior to the removal of vegetation, and in September 2001, following the removal of vegetation. No evidence of petroleum hydrocarbon releases and no stained areas were observed on the ground surface. Additionally, no stains were observed on the pavement adjacent to Site 07GN1.

Nearby Buildings

Site 07GN1 is located between Building 310 and Building 315. Building 310, constructed in 1944 and vacant since July 1999, was used for vehicle maintenance support according to the 1997 building guide. Building 315, also vacant since July 1999, was used as a squadron headquarters according to the 1997 building guide.

The area along the northeast edge of the asphalt parking lot adjacent to Building 310 is an unpaved, level area. Based upon the information from previous reports, Site 07GN1 is believed to be located near the pavement edge on the unpaved area between Building 310 and Building 315. No pavement patches for previous soil borings were observed on the parking area during the visual inspections. Two monitoring wells (07_DBMW100 and 07_DBMW100A) are located on the parking area.

Surface Water

Buildings 310 and 315 were evaluated and visual inspections were conducted in 1993 during the development of The Storm Water Pollution Prevention Plan (SWPPP IEM 1997). The SWPPP did not identify concerns at Building 310 or Building 315.

Surface water runoff at Site 07GN1 discharges to Agua Chinon Wash located southeast of the site. Surface water quality in Agua Chinon Wash and the other surface drainage channels at MCAS El Toro was monitored under the Station's National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water (NPDES Number CAS 618006) through operational closure in July 1999. Reports for the NPDES permit were submitted to the Regional Water Quality Control Board, Santa Ana Region. The permit was recently cancelled.

The surface drainage channels, including Agua Chinon Wash, were investigated during the Remedial Investigation of IRP Site 25 - the Major Drainages. IRP Site 25 achieved no further action status in September 1997 when the CERCLA ROD for No Action Sites (including IRP Site 25) was signed.

Soil samples were collected along the surface drainage channel located southeast of Site 07GN1 as part of the Remedial Investigation for Unit 4 of IRP Site 7, and the BCT has agreed that no further response actions are required at Unit 4 of IRP Site 7.

Groundwater

Groundwater is located at approximately 100 feet below ground surface based upon measurements at nearby well 07_DBMW100 (CDM 2000). Site 07GN1 is located near the southeastern edge of the trichloroethylene (TCE) groundwater plume which is managed as part of IRP Site 24. Carbon tetrachloride was detected as an estimated value ("J" qualifier) in water samples collected from 07_DBMW100 during 1992 and 1993.

Vadose Zone

Total recoverable petroleum hydrocarbons (TRPH) were identified by United States Environmental Protection Agency (USEPA) Method 418.1 in the surface sample (0 feet of depth) at sample location 07_GN1 at IRP Site 7, Unit 5 during the Remedial Investigation of IRP Site 7, however, the deeper sample collected at a depth of approximately 2 feet (07_GN1) did not have comparable results. TPH was analyzed by USEPA Method 8015-Modified, and the TPH concentrations were significantly lower than the TRPH concentrations.

Data collected during the Phase I Remedial Investigation activities at and near Site 07GN1 is summarized in Table 1. Samples were collected at the ground surface and at an approximate depth of 2 feet below ground surface. Sample results for 07_GN2 are also included in Table 1, and sample 07_GN2 was located more than 100 feet southeast of 07_GN1. TRPH concentrations were highest in the surface samples at sample locations 07_GN1 and 07_GN2. Diesel and gasoline were detected above laboratory reporting limits in some of the samples.

Table 1. Phase I Remedial Investigation Information for Site 07GN1.

Sample Identifier	Sample Depth (feet below ground surface)	Results for Petroleum Hydrocarbons
07_GN1	0	TRPH: 32,091 mg/kg TPH-g: 0.089 mg/kg TPH-d: 426 mg/kg
07_GN1	2	TRPH: 145 mg/kg TPH-g: 0.054 "U" mg/kg TPH-d: 16.9 mg/kg
07_GN1	2 (duplicate)	TRPH: 1,007 mg/kg TPH-g: 0.054 "U" mg/kg TPH-d: 13.5 "U" mg/kg
07_GN2	0	TRPH: 4,074 mg/kg TPH-g: 0.103 mg/kg TPH-d: 68.8 mg/kg
07_GN2	2	TRPH: 983 mg/kg TPH-g: 0.111 mg/kg TPH-d: 30.3 mg/kg

Site 07GN1 is located adjacent to the vapor extraction wellfield for the vadose zone at IRP Site 24. The nearest vapor extraction wells are 24SVE5 and 24SVE5A, located approximately 100 west of Site 07GN1. Low levels of trichloroethylene (TCE) were identified at these wells. A draft closure report for the IRP Site 24 vadose zone was submitted for BRAC Cleanup Team review in June 2001 (Earth Tech 2001).

Section 3

Field Activities of August through October 2001

During August through October 2001, the Navy planned for and implemented verification sampling activities at Site 07GN1. The sampling strategy is defined in the Technical Memorandum dated September 2001 which is presented as Attachment 2 to this report. During the initial inspections of August and September 2001, Site 07GN1 and the surrounding unpaved areas were covered with vegetation. In September 2001, the vegetation was removed and sample locations were identified based upon the previously published information from the Phase I Remedial Investigation of IRP Site 7.

Field Sampling Activities

The sampling techniques and analytical test methods that were used at Site 07GN1 were comparable to those used for the Site Assessment fieldwork associated with former Underground Storage Tank (UST) Site 764A and Oil/Water Separator (OWS) Site 764B (CDM 2001). The Site Assessment Report for former UST Site 764A and Former OWS Site 764B was submitted to the Regional Water Quality Control Board, Santa Ana Region in March 2001.

CDM Federal Programs Corporation (CDM) conducted the field sampling activities on 2 October 2001 under General Services Administration (GSA) Contract GS-10F-0227J, Delivery Order N68711-00-F-0106. Two soil samples were collected from each of two shallow borings (SB1 and SB2) at Site 07GN1. SB1 and SB2 are located near the former sample location 07_GN1.

Soil samples were collected at the ground surface and at an approximate depth of 2 feet below ground surface. Samples were analyzed by USEPA Method 8260 for Volatile Organic Compounds and USEPA Method 8015-Modified for Total Petroleum Hydrocarbons as diesel, as gasoline, and as motor oil. Samples were analyzed by Applied Physical and Chemical Laboratory (APCL) in Chino, California.

The results of the field sampling activities are presented in the Site Assessment Report for Site 07GN1 (CDM 2001) which is presented as Attachment 3 to this report. Table 2 summarizes the results of the sampling activities at Site 07GN1.

Table 2. Results of Site Verification Activities of October 2001 at Site 07GN1.

Sample Identifier	Total Petroleum Hydrocarbons Concentrations	Comments
SB1-0	Gasoline Range: 0.04 "J" mg/kg Diesel Range: 5 "J" mg/kg Oil Range: 62 mg/kg	Ground surface Toluene detected at 0.8 "J" micrograms/kg
SB1-2	Gasoline Range: 0.03 "J" mg/kg Diesel Range: <11 mg/kg Oil Range: 6 "J" mg/kg	2 feet below ground surface
SB2-0	Gasoline Range: 0.05 "J" mg/kg Diesel Range: 23 mg/kg Oil Range: 140 mg/kg	Ground surface Toluene detected at 0.9 "J" micrograms/kg
SB2-2	Gasoline Range: 0.03 "J" mg/kg Diesel Range: <11 mg/kg Oil Range: 14 mg/kg	2 feet below ground surface
SB2-2 duplicate	Gasoline Range: 0.04 "J" mg/kg Diesel Range: <11 mg/kg Oil Range: 10 "J" mg/kg	2 feet below ground surface

Findings

- The maximum total petroleum hydrocarbon concentration as motor oil was 140 milligrams per kilogram (mg/kg) in a surface sample at sample location SB2.
- The maximum total petroleum hydrocarbon concentration as diesel was 23 mg/kg in a surface sample from sample location SB2.
- Total petroleum hydrocarbons as gasoline were not detected at or above laboratory reporting limits.
- The total petroleum hydrocarbon concentrations in the 2-foot samples were lower than those detected in the ground surface samples.
- Benzene and methyl tert-butyl ether (MTBE) were not detected at or above laboratory reporting limits in the soil samples collected from Site 07GN1.
- Toluene was detected as an estimated value (less than 1 microgram per kilogram) in the surface samples collected at SB1 and SB2.
- Acetone, 2-butanone (MEK), and methylene chloride were detected at or above laboratory reporting limits in some of the samples. These chemicals may have been introduced during the laboratory testing activities and are not believed to represent contaminants associated with Site 07GN1.
- The depth to groundwater is approximately 100 feet below ground surface at Site 07GN1.

Recommendation

Based upon the low residual concentrations of total petroleum hydrocarbons that were detected during the sampling activities of October 2001, the absence of benzene and MTBE at or above laboratory reporting limits, the depth to groundwater, and the absence of visual evidence of a release on the ground surface, it is recommended that no further action status be designated for Site 07GN1.

Section 4

References and/or Sources of Information

California Regional Water Quality Control Board, Santa Ana Region. 1998. Statement of Basis, Renewal of Waste Discharge Requirements for Marine Corps Air Station, El Toro, Order Number 98-42 (NPDES Number CAS 618006). March.

CDM Federal Programs Corporation. 2001. Site Assessment Report for Site 07GN1 at Marine Corps Air Station, El Toro, California. November. [GSA Contract GS-10F-0227J, Delivery Order N68711-00-F-0106]

CDM Federal Programs Corporation. 2001. Final Site Assessment Report, Former UST Site 764A and Former OWS Site 764B, Marine Corps Air Station, El Toro.

CDM Federal Programs Corporation. 2000. Work Plan for Site Assessment at Building 392. October.

CDM Federal Programs Corporation. 2000. Final Groundwater Monitoring Report, October-November 1998 Sampling Round, Marine Corps Air Station, El Toro.

County of Orange. 1999. Preferred Land Use Plan, Concept B. August. [prepared by the MCAS El Toro Local Redevelopment Authority]

Earth Tech. 2000. Progress Report, Vadose Zone Remediation, Volatile Organic Compound Source Area, Installation Restoration Program Site 24, Marine Corps Air Station, El Toro. February. [Navy Contract N62742-94-D-0048, CTO 68]

Earth Tech. 2001. Draft Site Closure Report, Vadose Zone Remediation, IRP Site 24, Volatile Organic Compounds Source Area, Marine Corps Air Station, El Toro, California. June. [Navy Contract N62742-94-D-0048, CTO 68]

Integrated Environmental Management (IEM). 1997. Storm Water Pollution Prevention Plan (SWPPP) for Marine Corps Air Station, El Toro, El Toro, California. July. [Contract No. N68711-96-D-2059, Delivery Order Number 0002] *{Annotation: The IEM planning document included the acquisition and review of historical and current plans of facilities and utilities.}*

Jacobs Engineering Group (JEG). 1993. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Phase I Remedial Investigation Draft Technical Memorandum. May. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Jacobs Engineering Group (JEG). 1994. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Remedial Investigation/Feasibility Study, Final Soil Gas Survey, Technical Memorandum, Sites 24 and 25. October. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Science Applications International Corporation (SAIC). 1994. Final Hazardous Material/Hazardous Waste Management Plan. August.

Southwest Division, Naval Facilities Engineering Command. 2001. Technical Memorandum, Site 07GN1, Verification Strategy, MCAS El Toro. September.

U.S. Marine Corps Air Station, El Toro. 2001. Final Record of Decision, Operable Unit 3B, No Action Sites 7 and 14, Marine Corps Air Station, El Toro, California. June.

U.S. Marine Corps Air Station, El Toro. 1997. Draft Final Record of Decision, Operable Units 2A and 3A, No Action Sites, Marine Corps Air Station, El Toro, California. September.

United States Marine Corps Air Station, El Toro. 1997. Building Guide.

United States Marine Corps Air Station, El Toro. Circa 1946-1999. Station Property Records.

Primary Sources of Map Information:
Jacobs Engineering Group, 1993
And
United States Marine Corps 2001.

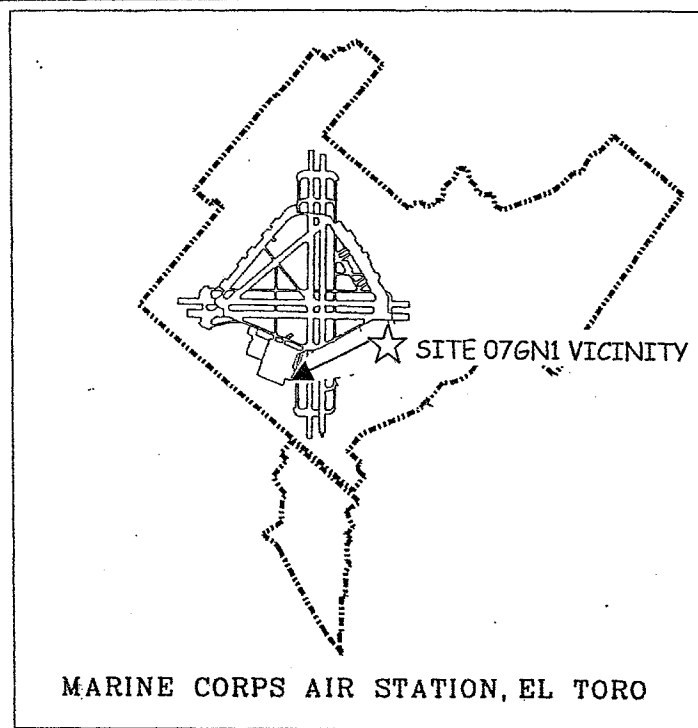
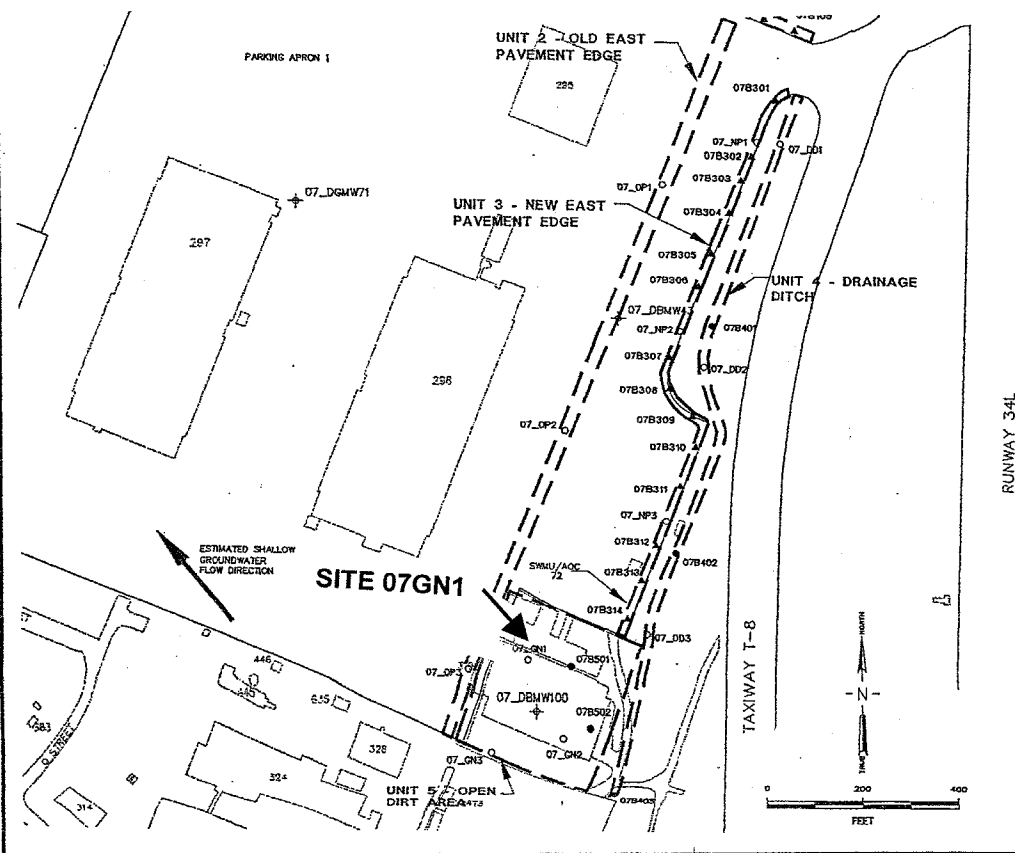
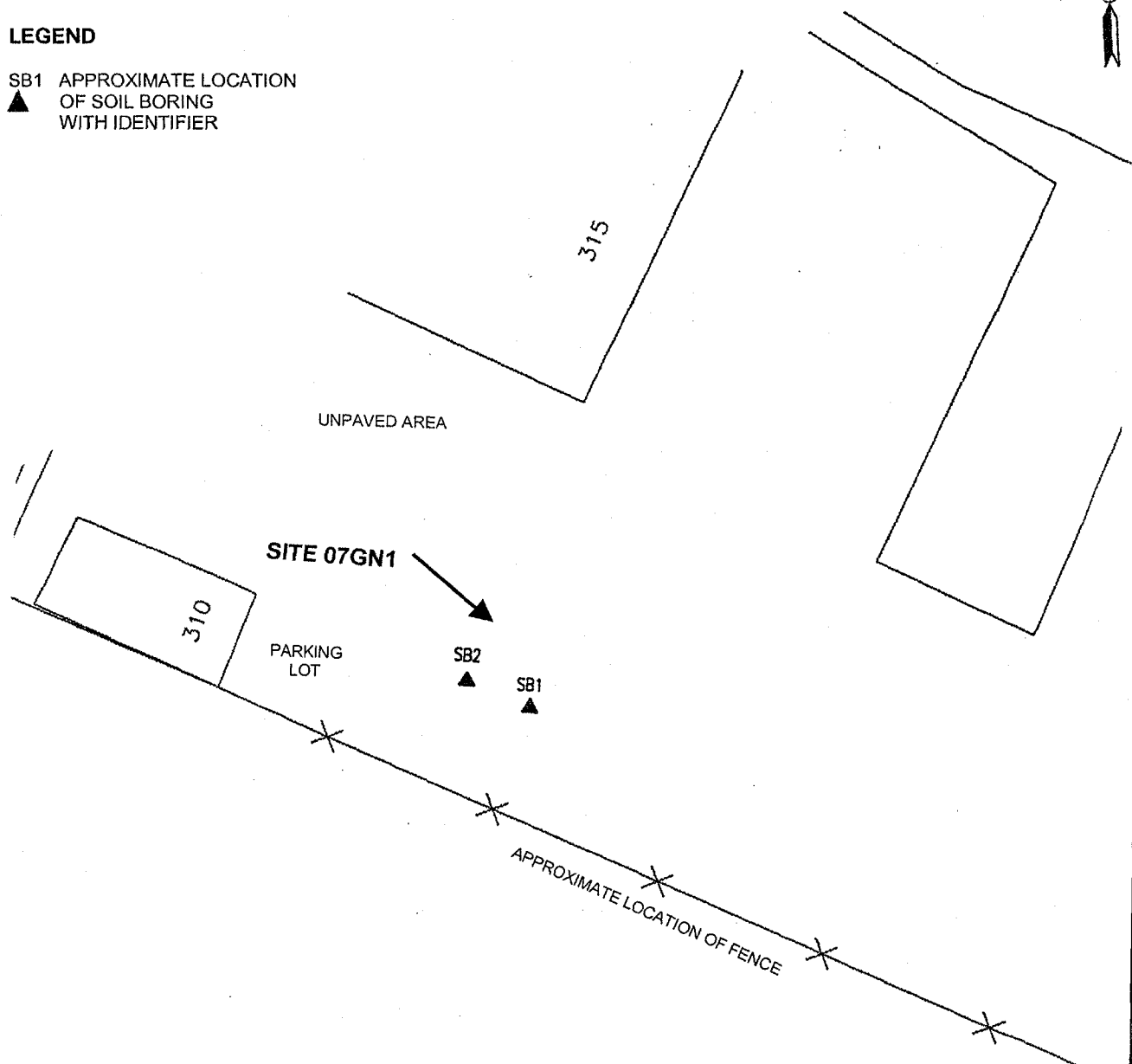


Figure 1.
PETROLEUM CORRECTIVE ACTION
PROGRAM SITE 07GN1
VICINITY MAP
MARINE CORPS AIR STATION, EL TORO

Source of Map Information:
CDM 2001.

LEGEND

SB1 APPROXIMATE LOCATION
OF SOIL BORING
WITH IDENTIFIER
▲



0 5 10 15 20 25
APPROXIMATE SCALE IN FEET

Figure 2.

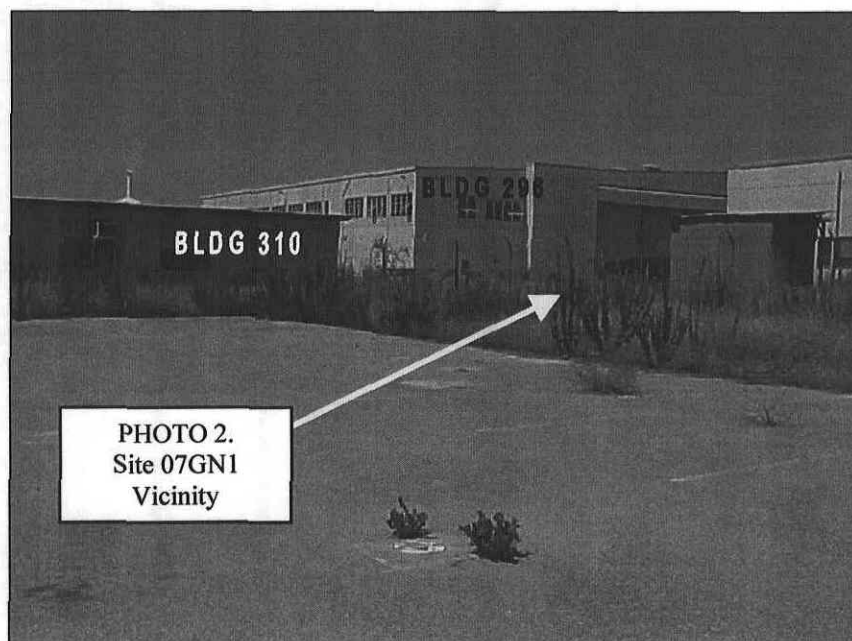
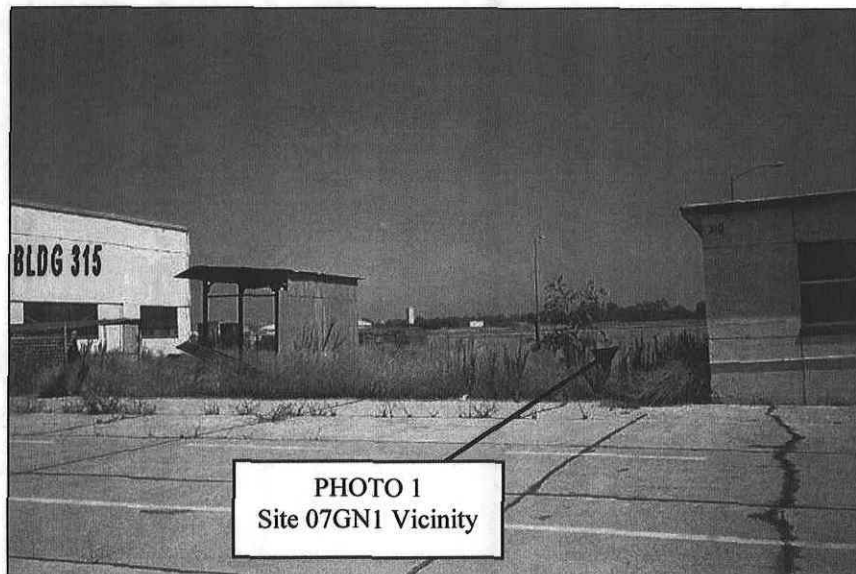
PETROLEUM CORRECTIVE ACTION
PROGRAM SITE 07GN1

**SAMPLE LOCATIONS
OCTOBER 2001**

MARINE CORPS AIR STATION, EL TORO

Photographs 1 and 2. Site 07GN1 at Installation Restoration Program (IRP) Site 7,
Unit 5 Prior to Removal of Surface Vegetation.
Marine Corps Air Station, El Toro

Date of Photographs: August-September 2001



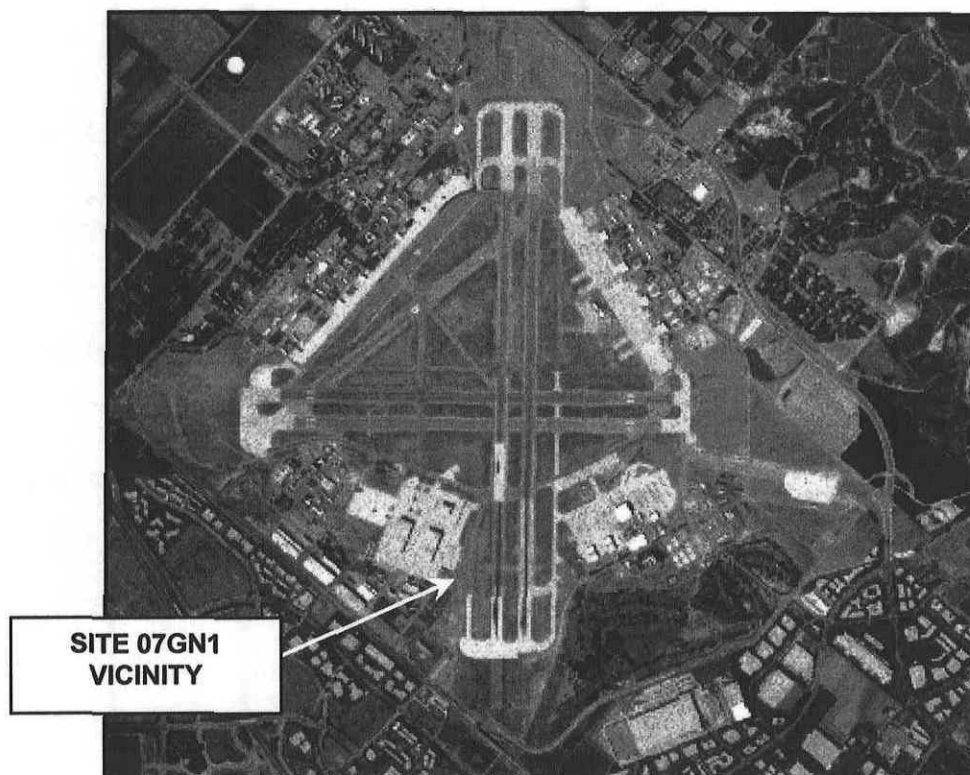
**Photograph 3. Sampling Activities at Site 07GN1
at Installation Restoration Program (IRP) Site 7, Unit , Looking Northwest Toward
IRP Site 24 SVE Treatment System.
Marine Corps Air Station, El Toro**

Date of Photograph: 2 October 2001



Photograph 4. Vicinity of Site 07GN1
Marine Corps Air Station, El Toro

Date of Aerial Photograph: 1994



SOUTHWESTNAVFACENGCOM
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San Diego, California 92132-5190

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ATTACHMENT 1

RWQCB Letter dated 16 February 2001



California Regional Water Quality Control Board

Santa Ana Region



Winston H. Hlickox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov/rwqcb8>
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

February 16, 2001

Mr. Dean Gould
BRAC Environmental Coordinator
MCAS EL Toro
P.O. Box 51718
Irvine, California 92619-1718

COMMENTS ON DRAFT RECORD OF DECISION, OPERABLE UNIT 3B, NO ACTION SITES 7 AND 14, FORMER MARINE CORPS AIR STATION, EL TORO


Dear Mr. Gould:

We have completed our review of the above reference document, dated November 2000, which we received on November 22, 2000. We have the following comments on this report:

5.2.3.8 SUMMARY OF PHASE I AND PHASE II RESULTS, Unit 5, Open Dirt Area,
Page 5-16: Unit 5 Sample 07_GN1, a surface sample, had a TRPH concentration of 32,091 mg/kg. Based on this analytical data, it is likely that a surface spill of petroleum hydrocarbon occurred in the area at some time in the past. A surface sample with TRPH of this concentration is considered a significant result, and represents a potential threat to surface water quality. The magnitude of this potential threat is dependent upon the area represented by this sample and the magnitude of the possible spill. We request that you investigate the area represented by this sample, and take appropriate remedial action on any surface spill delineated under your installation's petroleum release corrective action program.

For any questions on this review or related matters, please call me at (909) 782-4498.

Sincerely,


John Broderick
SLIC/DoD/AGT Section

cc: Ms. Nicole Moutoux, U.S. Environmental Protection Agency, Region IX
Ms. Triss Chesney, Department of Toxic Substances Control, OMF
Mr. Gregory F. Hurley, RAB Co-Chair, MCAS El Toro
Ms. Content Arnold, Naval Facilities Engineering Command, SWDIV

California Environmental Protection Agency



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ATTACHMENT 2

Technical Memorandum dated 12 September 2001

Technical Memorandum

Site 07GN1

Verification Strategy

Total Recoverable Petroleum Hydrocarbon Release
Installation Restoration Program (IRP) Site 7, Unit 5
Marine Corps Air Station, El Toro

12 September 2001

Prepared by:

Lynn Marie Hornecker
Project Manager

Southwest Division
Naval Facilities Engineering Command
BRAC Operations
San Diego, California

Section 1

Objectives

The objectives of this technical memorandum are to provide background information pertaining to Site 07GN1 and to describe the proposed verification sampling strategy for Site 07GN1 at the Marine Corps Air Station, El Toro.

Site 07GN1 is located within the investigation boundary of Installation Restoration Program (IRP) Site 7, Unit 5 (Drop Tank Drainage Area Number 2, Open Dirt Area). Additionally, Site 07GN1 is located within the investigation boundary of IRP Site 24 - the Volatile Organic Compound (VOC) Source Area. Maps of Site 07GN1 are presented as Figures 1 and 2, and the location of Site 07GN1 relative to planned reuse parcels (County of Orange, 1999) is shown on Figure 3. Additionally, photographs of the vicinity of Site 07GN1 are included in the Appendix.

A Final Record of Decision (ROD) for no action at IRP Site 7 was signed in June 2001. During the development of the Final ROD, the members of the Base Realignment and Closure Cleanup Team (BCT) agreed that additional investigation of the area at sample location 07GN1 (known as Site 07GN1 in this document) would be conducted under the Petroleum Corrective Action Program with oversight by the Regional Water Quality Control Board, Santa Ana Region.

Section 2

Existing Information

Site 07GN1 is located east of Building 310 and between Buildings 310 and 315. Building 310, vacant since July 1999, was used for vehicle maintenance support according to the 1997 building guide. Building 315, also vacant since July 1999, was used as a squadron headquarters according to the 1997 building guide.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) did not identify concerns at Building 310 or Building 315, and the SWPPP indicates that Building 310 and Building 315 do not involve the usage, handling, transport, or storage of significant quantities of industrial materials. Extracts from the SWPPP are included in the Appendix.

Remedial Investigation Information

Site 07GN1 coincides with the Phase I Remedial Investigation sample location by the same name - 07_GN1. Sample point 07GN1 was located near the edge of an asphalt parking lot that is located southeast of Building 310. The area along the northeast edge of the asphalt parking lot is an unpaved, level area. Based upon the information from previous reports, Site 07GN1 is believed to be located near the pavement edge on the unpaved area between Buildings 310 and 315.

Total recoverable petroleum hydrocarbons (TRPH) were identified by United States Environmental Protection Agency (USEPA) Method 418.1 in the surface sample (0 feet of depth); however, the deeper sample collected at 07_GN1 did not have comparable results. TPH was analyzed by USEPA Method 8015-Modified, and the TPH concentrations were significantly lower than the TRPH concentrations.

Sample Identifier	Sample Depth (feet below ground surface)	Results for Petroleum Hydrocarbons
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07_GN2	0	TRPH: 4,074 mg/kg TPH-g: 0.103 mg/kg TPH-d: 68.8 mg/kg
07_GN2	2	TRPH: 983 mg/kg TPH-g: 0.111 mg/kg TPH-d: 30.3 mg/kg
07B501	0-1	TPH-motor oil: 95 mg/kg

IRP Site 24 - VOC Source Area Remediation

Site 07GN1 is located adjacent to the vapor extraction wellfield for the vadose zone at IRP Site 24. The nearest vapor extraction wells are 24SVE5 and 24SVE5A, located approximately 100 west of Site 07GN1. Low levels of trichloroethylene (TCE) were identified at these wells. A draft closure report for the IRP Site 24 vadose zone was submitted for BRAC Cleanup Team review in June 2001.

Section 3

Planned Sampling Locations

The Navy conducted visual inspections of the area between Buildings 310 and 315, and no stains or other evidence of releases was observed.

Two samples are tentatively planned for collection at two locations near former sample location 07_GN1 with analysis by United States Environmental Protection Agency (USEPA) Method 8015-M (Total Petroleum Hydrocarbons - modified for gasoline), USEPA Method 8015-M (Total Petroleum Hydrocarbons - modified for diesel and motor oil), USEPA Method 8260B (Volatile Organic Compounds - modified to report Methyl Tert Butyl Ether (MTBE)).

One sample at each location will be collected in the zone from the ground surface (0 feet) to a depth of approximately 6 inches below ground surface.

One sample at each location will be collected in the zone from approximately 18 inches to 2 feet below ground surface.

Results of the laboratory analysis will be included with a brief letter report.

Section 4

References and/or Sources of Information

CDM Federal Programs Corporation. 2000. Work Plan for Site Assessment at Building 392. October.

CDM Federal Programs Corporation. 2000. Final Groundwater Monitoring Report, October-November 1998 Sampling Round, Marine Corps Air Station, El Toro.

County of Orange. 1999. Preferred Land Use Plan, Concept B. August. [prepared by the MCAS El Toro Local Redevelopment Authority]

Earth Tech. 2000. Progress Report, Vadose Zone Remediation, Volatile Organic Compound Source Area, Installation Restoration Program Site 24, Marine Corps Air Station, El Toro. February. [Navy Contract N62742-94-D-0048, CTO 68]

Integrated Environmental Management (IEM). 1997. Storm Water Pollution Prevention Plan (SWPPP) for Marine Corps Air Station, El Toro, El Toro, California. July. [Contract No. N68711-96-D-2059, Delivery Order Number 0002] {*Annotation: The IEM planning document included the acquisition and review of historical and current plans of facilities and utilities. Extracts from the IEM report are presented in the Appendix.*}

Jacobs Engineering Group (JEG). 1993. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Phase I Remedial Investigation Draft Technical Memorandum. May. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Jacobs Engineering Group (JEG). 1994. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Remedial Investigation/Feasibility Study, Final Soil Gas Survey, Technical Memorandum, Sites 24 and 25. October. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Science Applications International Corporation (SAIC). 1994. Final Hazardous Material/Hazardous Waste Management Plan. August.

United States Environmental Protection Agency. 1991. Site Analysis, El Toro MCAS, Orange County, California.

U.S. Marine Corps Air Station, El Toro. 2001. Final Record of Decision, Operable Unit 3B, No Action Sites 7 and 14, Marine Corps Air Station, El Toro, California. June.

U.S. Marine Corps Air Station, El Toro. 1997. Draft Final Record of Decision, Operable Units 2A and 3A, No Action Sites, Marine Corps Air Station, El Toro, California. September.

United States Marine Corps Air Station, El Toro. 1994 and 1997. Building Guide.

United States Marine Corps Air Station, El Toro. Circa 1946-1999. Station Property Records.

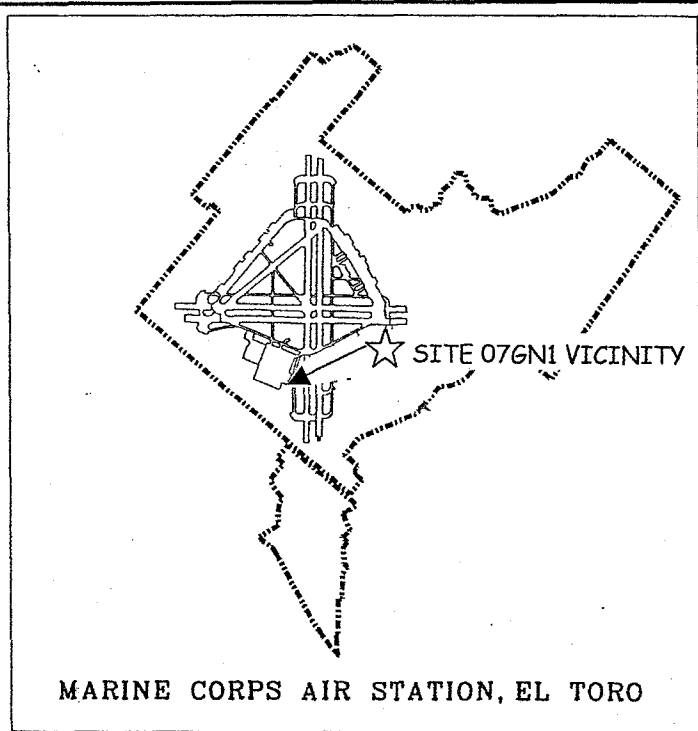
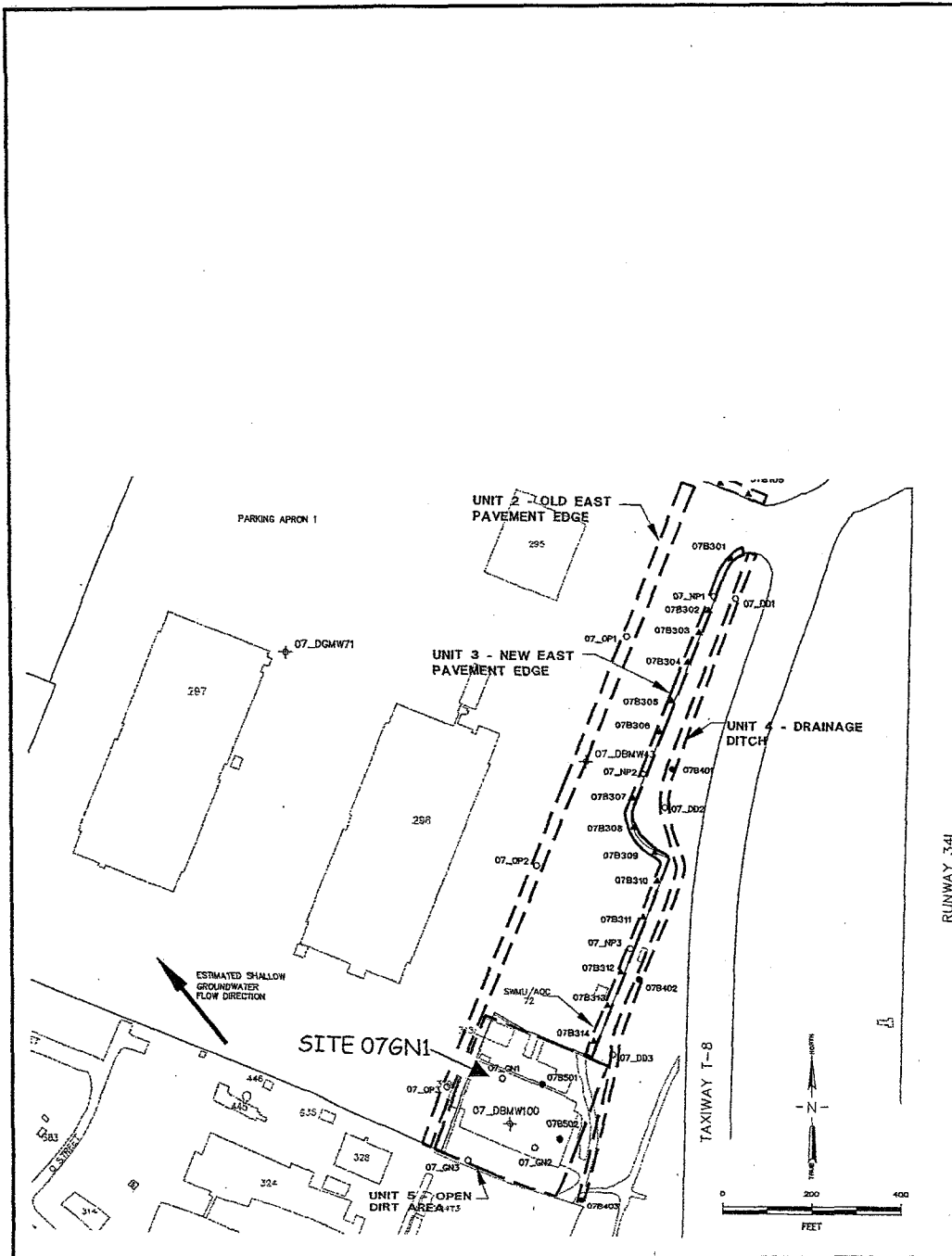
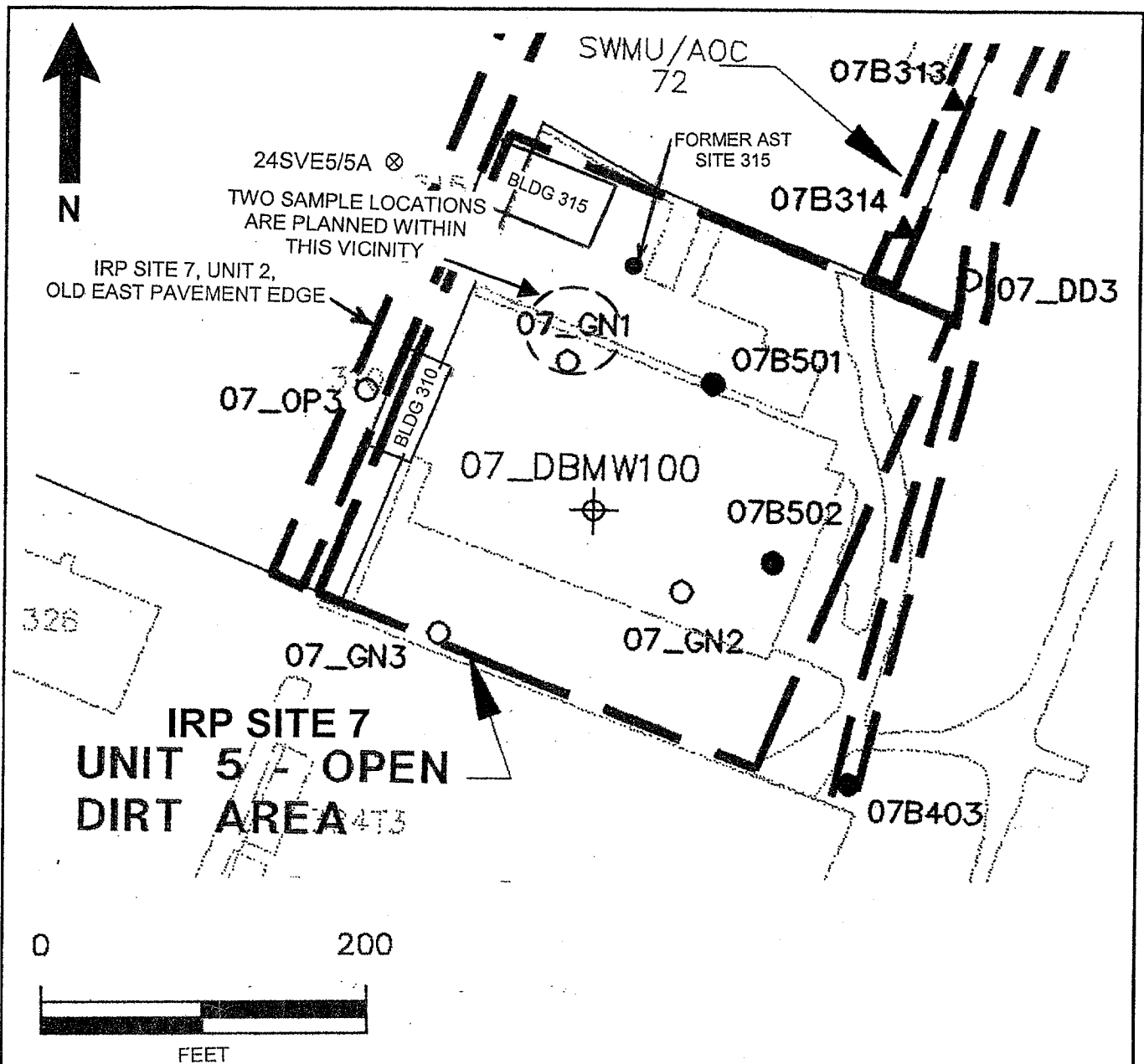


Figure 1.

PETROLEUM CORRECTIVE ACTION PROGRAM

SITE 07GN1 VICINITY MAP

MARINE CORPS AIR STATION, EL TORO



NOTES:

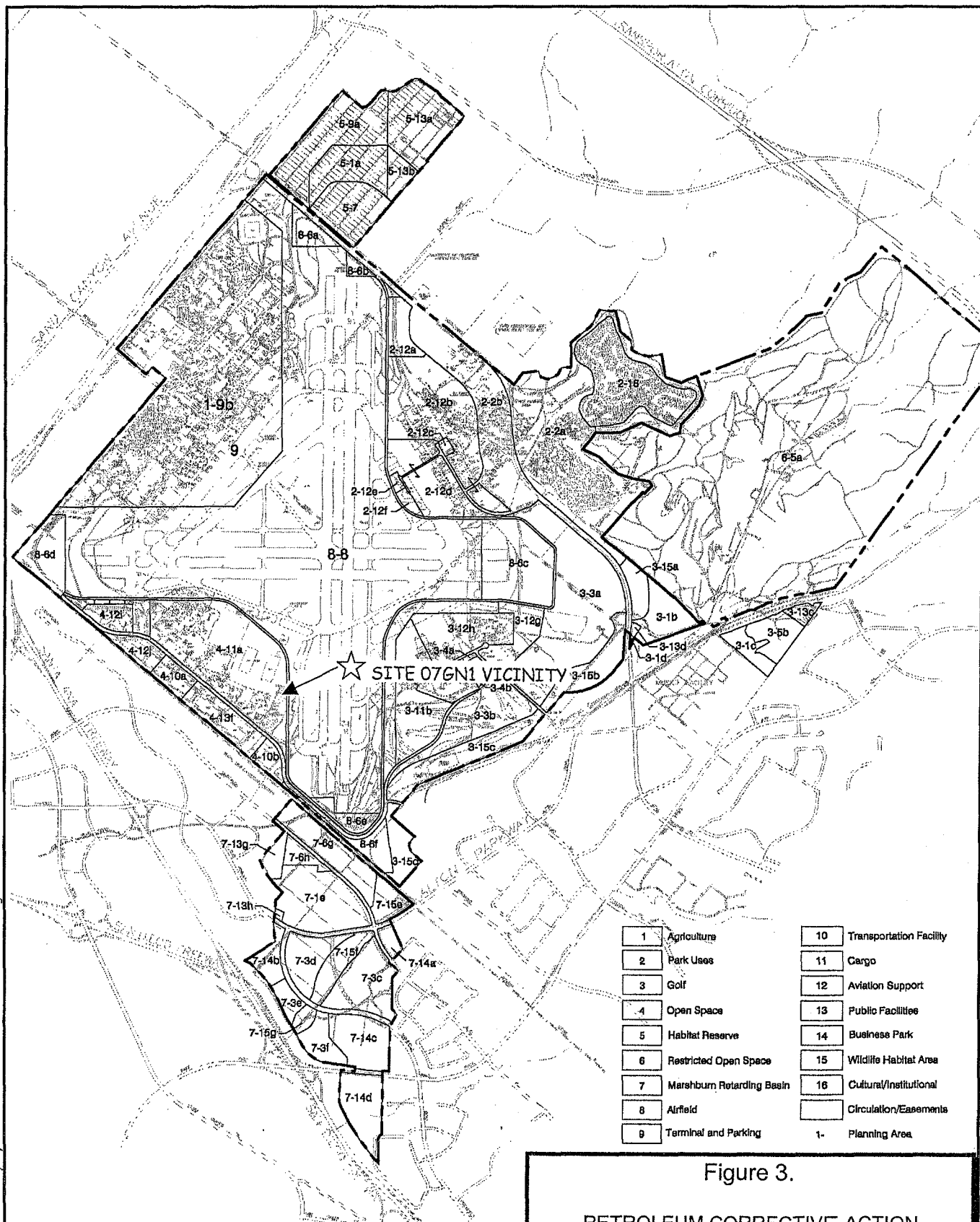
- 1) Approximate Scale 1 inch = 100 feet
- 2) Locations of previous sample points and nearby features are estimated.
- 3) Most of the map information was extracted from the ROD (USMC 2001).
- 4) Planned sampling locations are intended to be located within 30 feet of sample 07GN1.

Figure 2.

PETROLEUM CORRECTIVE ACTION
PROGRAM

**SITE 07GN1
PLANNED SAMPLING
LOCATIONS**

MARINE CORPS AIR STATION, EL TORO



Appendix

Site Photographs and Other Documentation

Site Photographs

RWQCB Letter of 16 February 2001

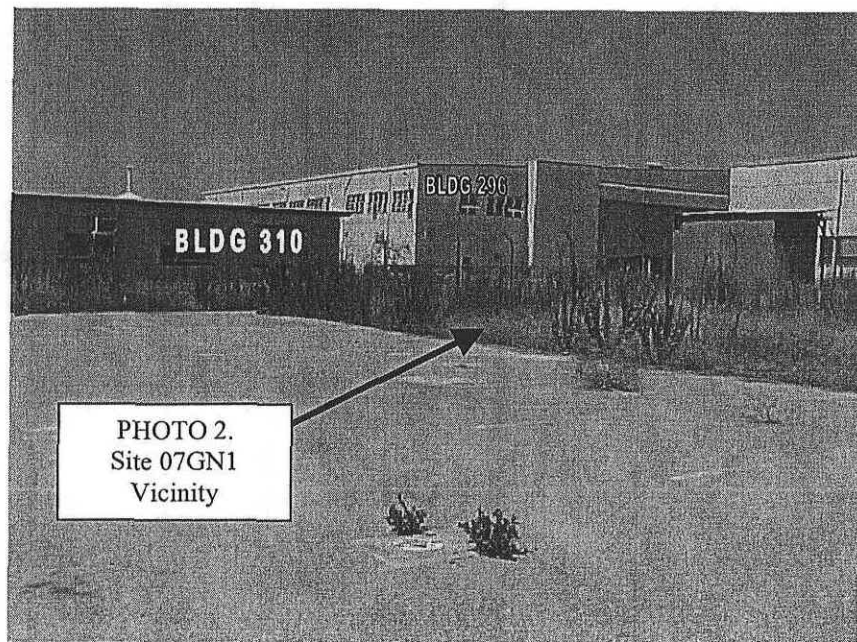
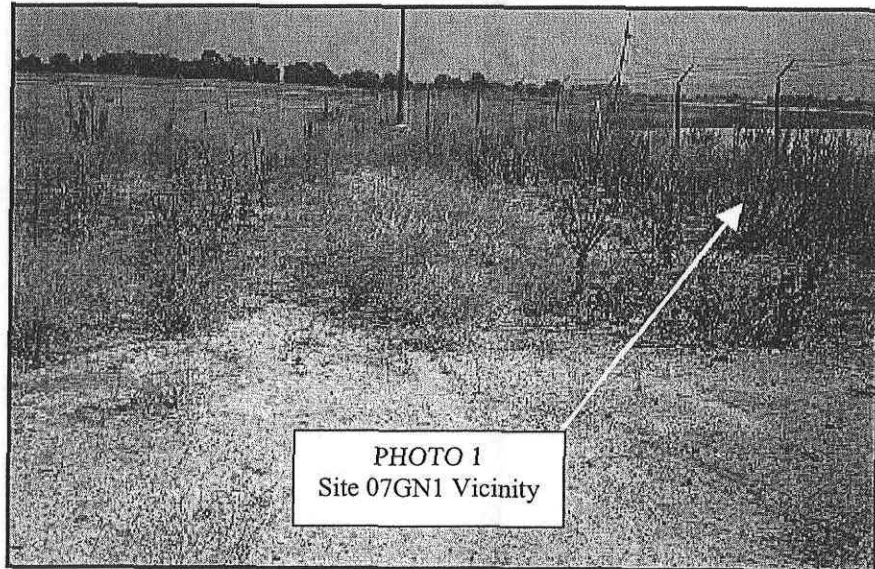
Building Guide and Property Record Extracts

Extracts from SWPPP

Extracts from Final Record of Decision for Sites 7 and 14

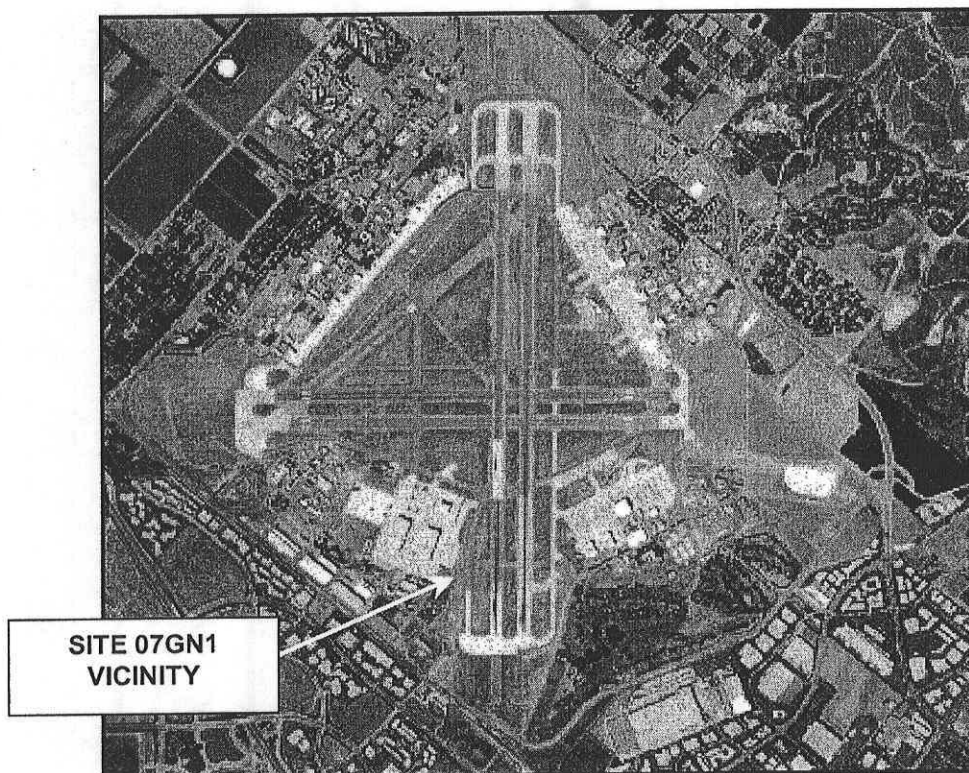
Photographs 1 and 2. Site 07GN1 at Installation Restoration Program (IRP) Site 7,
Unit 5.
Marine Corps Air Station, El Toro

Date of Photographs: August-September 2001



Photograph 3. Vicinity of Site 07GN1
Marine Corps Air Station, El Toro

Date of Aerial Photograph: 1994





California Regional Water Quality Control Board

Santa Ana Region



Winston H. Jilekox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov/rwqcb8>
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

February 16, 2001

Mr. Dean Gould
BRAC Environmental Coordinator
MCAS EL Toro
P.O. Box 51718
Irvine, California 92619-1718

COMMENTS ON DRAFT RECORD OF DECISION, OPERABLE UNIT 3B, NO ACTION SITES 7 AND 14, FORMER MARINE CORPS AIR STATION, EL TORO


Dear Mr. Gould:

We have completed our review of the above reference document, dated November 2000, which we received on November 22, 2000. We have the following comments on this report:

5.2.3.8 SUMMARY OF PHASE I AND PHASE II RESULTS, Unit 5, Open Dirt Area,
Page 5-16: Unit 5 Sample 07_GN1, a surface sample, had a TRPH concentration of 32,091 mg/kg. Based on this analytical data, it is likely that a surface spill of petroleum hydrocarbon occurred in the area at some time in the past. A surface sample with TRPH of this concentration is considered a significant result, and represents a potential threat to surface water quality. The magnitude of this potential threat is dependent upon the area represented by this sample and the magnitude of the possible spill. We request that you investigate the area represented by this sample, and take appropriate remedial action on any surface spill delineated under your installation's petroleum release corrective action program.

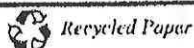
For any questions on this review or related matters, please call me at (909) 782-4498.

Sincerely,


John Broderick
SLIC/DoD/AGT Section

cc: Ms. Nicole Moutoux, U.S. Environmental Protection Agency, Region IX
Ms. Triss Chesney, Department of Toxic Substances Control, OMF
Mr. Gregory F. Hurley, RAB Co-Chair, MCAS El Toro
Ms. Content Arnold, Naval Facilities Engineering Command, SWDIV

California Environmental Protection Agency



received
20 Feb 2001

MCAS EL TORO BUILDING GUIDE

FAC NO.	MAP GRID	DESCRIPTION	TENANT	CAT CODE NUMB	COST ACCT CODE	SIZE
306	T6	PW Pipe/Heat/Refrig Shop	Installation	21910	EBBO	15712 SF
306	T6	Vacant (Water Treatment)	Installation	84209	EHCO	1000 SF
307	U6	EAFF Storage	MWSS-373	44111	EBDO	3965 SF
307	U6	SOMS Recovery Hqs	SOMS	61072	EBFO	4300 SF
307	U6	EAFF Wt Handling Shop	MWSS-373	21820	EBBO	23107 SF
307	U6	MC Storage	Vacant	44111	EBDO	3965 SF
308	M9	GSE Storage	MALS-11	21860	EBBO	720 SF
309	U8	Group Headquarters	MWSS-37	61071	EBFO	10368 SF
→ 310	T9	To be demo	VAC (G-4)	21106	EBVO	1796 SF
311	U8	Fire Station #2	Security	73010	EBLO	3913 SF
312	U8	Photographic Bldg	Vacant	14160	EBNO	5243 SF
313	U8	Storage out of Stores	MWSS-373	44112	EBDO	30000 SF
313	U8	Field Maint Shop	CSSD-14	21453	EBBO	20000 SF
314	U9	Highbay Storage	Supply	61010	EBDO	6123 SF
315	T9	Air Frame Welding	Vacant	21106	EBVO	3444 SF
317	U7	Commissary Warehouse	DECA	44110	EBDO	126322
318	U8	General Warehouse Navy	Supply	44111	EBDO	81606
318	U8	MTIS Bldg	Supply	44173	EBDO	40803 SF
319	U8	General Warehouse MC (DRMD)	DRMD	44111	EBDO	70150 SF
319	U8	General Warehouse Navy	Supply	44111	EBDO	56579 SF
320	U7	Hazardous/Flam Storehouse	Supply	44130	EBDD	17100 SF
321	U8	Admin Office	Supply	61010	EBFO	37940 SF
321	U8	Data Processing Center	Vacant	61020	EBFO	6522 SF
321	U8	General Warehouse MC	Supply	44111	EBDO	25838 SF
322	U7	EM Mess Open	Vacant	72210	EBHO	10653 SF
324	U9	Applied Instruction	NAMTRADET	21977	EBAO	32680 SF
324	U9	Storage	Installation	44112	EBDO	11567 SF
324	U9	CO2 Storage	Sta/G-1	72111	EBGO	1611 SF
325	U9	Hazardous/Flam Storehouse	NAMTRADET	44130	EBDD	251 SF
326	T9	Hazardous/Flam Storehouse	Environment	44130	EBDO	11446 SF
328	P4	Temp Admin Spaces	MACB-38	61070	EBFO	43923 SF
			NECA	61010	EBFO	22328 SF

El Toro Building Guide

BLDG	GRI	DESCRIPTION	TENANT	CATCO	CAC	SIZE
296	T9	(Grd Sup Equipment Shop)	Vacant	21860	EBBO	4400 SF
296	T9	Maint Hangar 02 Space	MAG-46	21107	EBVO	20240 SF
296	T9	(Maint Hangar 02 Space)	Vacant	21107	EBVO	42846 SF
296	T9	(Maint Hangar 01 Space)	Vacant	21106	EBVO	32926 SF
296	T9	(Maint Hangar 01 Space)	Vacant	21106	EBVO	20128 SF
296	T9	(Maint Hangar OH Space)	Vacant	21105	EBVO	40480 SF
296	T9	(Storage)	Vacant	44112	EBDO	8720 SF
296	T9	Armory	MALS-46	14325	EBPO	1152 SF
296	T9	Transformer Room	Station	81209	EBBO	800 SF
296	09	Boiler Room	Station	82109	EABO	576 SF
297	T8	(Maint Hangar OH Space)	Vacant	21105	EBVO	40480 SF
297	T8	Maint Hangar 02 Space	VMGR-352	21107	EBVO	39595 SF
297	T8	(Maint Hangar 01 Space)	Vacant	21106	EBVO	20240 SF
297	T8	Maint Hangar OH Space	VMGR-352	21105	EBVO	40480 SF
297	T8	Boiler Room	Station	82109	EABO	750 SF
297	T8	(Maint Hangar 02 Space)	Vacant	21107	EBVO	13891
298	U7	GME	Sta/G-4	21420	EBBO	14559 SF
299	U7	GME	Sta/G-4	21420	EBBO	4268 SF
300	T6	AFGE Office	Station	61010	EBFO	225 SF
300	T6	Environment Office	Environment	61010	EBFO	1220 SF
300	T6	Public Works Warehouse	Installation	21910	EBBO	4574 SF
301	T6	PW Admin/Labor Shop	Installation	21910	EBBO	5120 SF
302	T6	Public Works Elec Shop	Installation	21910	EBBO	5120 SF
304	T6	Academic Instruction (EEO)	HRO	17110	EBAO	1800 SF
304	T6	Admin Office (CPO)	HRO	61010	EBFO	7518 SF
304	T6	Civilian Credit Union	Credit Union	74019	EBLO	1500 SF
305	U7	Group Headquarters	MWSG-37	61072	EBFO	4000 SF
306	T6	PW Pipe/Heat/Refrig Shop	Installation	21910	EBBO	15712 SF
306	T6	Vacant (Water Treatment)	Installation	84209	EHCO	1000 SF
307	U6	EAF Storage	MWSS-373	44110	EBDO	3965 SF
307	U6	EAF Wt Handling Shop	MWSS-373	21820	EBBO	23107 SF
307	U6	(MC Storage)	Vacant	44111	EBDO	3965 SF
307	U6	SOMS Recovery Hqs	SOMS	61072	EBFO	4300 SF
308	M9	GSE Storage	MALS-11	21860	EBBO	720 SF
309	U8	Group Headquarters	MWSG-37	61071	EBFO	10368 SF
→ 310	T9	Vehicle Maint Facility	MAG-46	21451	EBBO	1796 SF
311	U8	Fire Station #2	Security	73010	EBLO	3913 SF
312	U8	(Photographic Bldg)	Vacant	14160	EBNO	5243 SF
313	U8	Field Maint Shop	CSSD-14	21453	EBBO	20000 SF
313	U8	Storage out of Stores	MWSS-373	44112	EBDO	30000 SF
314	U9	Highbay Storage	Supply	44110	EBDO	6123 SF
315	T9	Squadron Headquarters	MAG-46	61072	EBFO	3444 SF
317	U7	DeCA Office	DeCA	61010	EBDO	20862 SF
317	U7	Marine Corps Supply	Supply	44110	EBDO	105460
317	U7	Laundry Pickup Point	Supply	73040	EBLO	
318	U8	General Warehouse Navy	Supply	44111	EBDO	81606 SF

5231	71161	RENTAL HOUSING /NAMAR/		19450301	SF	2,158	105	20	10	\$12,816	\$148,322	1945	1980
5215	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5216	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5217	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5218	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5219	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5224	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5234	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
5242	71161	RENTAL HOUSING /NAMAR/		19450301	SF	4,644	113	20	19	\$20,591	\$236,611	1945	1980
320	44130	PAINT-CHEMICAL STOREHOUSE	NOY10151	19450101	SF	17,100	171	100	16	\$76,895	\$871,042	1945	1990
322	72210	MESS HALL/ENLISTED	NOY10151	19450301	SF	10,653	142	112	22	\$148,183	\$1,265,334	1945	1990
325	44130	HAZARDOUS MATERIAL BLDG.	NOY8647	19450801	SF	251	22	11	8	\$1,500	\$18,059	1945	
328	61071	GROUP HEADQUARTERS	NOY11416	19450801	SF	43,923	228	163	21	\$315,876	\$3,228,136	1945	1990
329	61010	DECA HEADQUARTERS	NOY11416	19450301	SF	22,328	228	163	21	\$122,623	\$1,338,162	1945	1990
534	44130	CHEMICAL STORAGE BLDG	NOY9453	19460601	SF	800	40	20	13	\$8,189	\$41,105	1946	1990
335	84209	PUMPHOUSE	NOY10290	19451001	SF	1,125	48	23	14	\$14,999	\$194,912	1945	1980
333	21453	FIELD MAINT SHOP	NOY8802	19450201	SF	2,610	95	30	11	\$21,073	\$241,640	1945	1989
341	21860	GSE SHOP	NOY11416	19450201	SF	468	22	21	9	\$4,197	\$32,080	1945	1981
326	83141	HAZ/WASTE STORAGE/TRANSFER	NOY11210	19450101	SF	11,446	113	72	42	\$290,577	\$3,498,257	1945	
307	61072	LAUNDRY/COMM ELEC/STRG	NOY8759	19441201	SF	35,337	324	136	25	\$390,067	\$2,647,199	1944	1988
308	44130	HAZ/MAT STOR		19441101	SF	720	40	18	11	\$2,500	\$32,060	1944	
309	61071	GROUP HEADQUARTERS		19440101	SF	10,368	96	54	25	\$53,974	\$512,104	1944	1990
312	14160	PHOTO LAB	NOY9452	19441201	SF	5,243	104	57	15	\$81,522	\$749,324	1944	1986
313	44111	GENERAL WAREHOUSE MARCORPS	NOY9452	19440401	SF	50,000	250	200	39	\$183,056	\$2,263,963	1944	1990
319	44111	STOREHOUSE		19450101	SF	126,729	603	203	27	\$328,519	\$3,495,790	1945	1993
318	44110	STOREHOUSE	NOY10151	19450301	SF	122,409	603	203	27	\$322,621	\$3,594,113	1945	1990
317	44111	DECA ADMIN	NOY10151	19450401	SF	126,322	603	232	39	\$813,730	\$4,610,287	1945	1990
315	21106	AIRFRAME SHOP	NOY9452	19450201	SF	3,444	82	42	25	\$25,151	\$279,046	1945	1983
314	44110	HEATING PLANT BLDG	NOY9452	19450201	SF	6,123	105	47	36	\$122,385	\$1,384,885	1945	1990
581	74034	COMMUNITY BLDG.		19450601	SF	4,460	101	65	10	\$28,772	\$335,987	1945	1984
291	44112	STORAGE OUT OF STRS MARCOR	NOY8759	19441101	SF	14,400	160	60	17	\$24,348	\$285,175	1944	1988
306	21910	PW PIPE/HEAT/REFRIG SHOP	NOY9453	19440101	SF	16,712	123	108	28	\$25,895	\$332,077	1944	
305	61072	SQDRN HDQRTS	NOY8759	19440601	SF	4,000	100	40	13	\$29,263	\$162,344	1944	1988
298	21420	AUTOMOTIVE VEHICLE MNT SHOP	NOY8759	19441101	SF	14,559	224	155	17	\$67,834	\$591,758	1944	1981
272	74040	BOWLING ALLEY	NOY8759	19440301	SF	14,664	141	104	17	\$75,532	\$941,750	1944	1990
290	44111	GENERAL WAREHOUSE MARCOR	NOY8759	19440201	SF	4,000	100	40	13	\$16,000	\$209,632	1944	
295	21106	MAINT HANGAR	NOY8802	19441201	SF	40,418	182	160	44	\$429,684	\$3,823,700	1944	1993
288	21107	STA ACFT ADMIN BLDG	NOY8759	19441101	SF	4,160	112	80	10	\$42,416	\$301,394	1944	1986
285	74085	WAREHOUSE	NOY8759	19440501	SF	16,000	200	80	21	\$121,786	\$1,518,446	1944	1985
300	21910	PW STOR/SHOP	NOY8759	19450601	SF	6,020	160	50	13	\$24,633	\$223,333	1945	1988
292	61072	SQUADRON HQ	NOY8759	19440701	SF	13,126	172	129	14	\$33,009	\$410,509	1944	1985
301	21910	PW SHOP	NOY8759	19450101	SF	5,120	160	32	13	\$15,688	\$153,401	1945	1990
302	21910	PW ELECTRICAL SHOP	NOY8759	19450501	SF	5,120	160	32	13	\$86,359	\$234,786	1945	1990
304	61010	ADMINISTRATION BLDG	NOY8759	19441201	SF	10,818	160	90	12	\$107,603	\$739,194	1944	1994
529	21925	STORAGE BLDG		19440201	SF	3,040	76	40	17	\$33,704	\$432,220	1944	1977
310	21106	AIRFRAME SHOP		19440101	SF	1,796	63	28	11	\$8,748	\$114,616	1944	
311	73010	FIRE STATION #2		19440101	SF	3,913	91	43	13	\$29,807	\$219,292	1944	1988
321	61010	ADMIN-SHIPING-REC	NOY10151	19450101	SF	70,300	397	100	28	\$473,978	\$4,086,835	1945	1993
297	21106	HANGAR/SQUADRON/	NOY8802	19440101	SF	201,482	602	253	54	\$1,274,616	\$13,530,628	1944	1988
296	21106	HANGAR	NOY8802	19440101	SF	212,748	626	253	54	\$1,302,003	\$13,856,922	1944	1990
1538	61010	FILLING STATION BLDG		19450201	SF	64	8	8	8	\$100	\$1,174	1945	
1601	21925	PW MAINT STRG		19450115	SF	1,522	51	30	9	\$3,800	\$44,616	1945	
324	17120	TRAINING BLDG	NOY9452	19451201	SF	45,858	399	143	38	\$706,331	\$8,179,783	1945	1988

**STORM WATER POLLUTION PREVENTION PLAN
(SWPPP)**

EXTRACTS

FOR

**MARINE CORPS AIR STATION EL TORO
EL TORO, CALIFORNIA**

**CONTRACT NO. N68711-96-D-2059
DELIVERY ORDER NO. 0002**

VOLUME 1

JULY, 1997

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.

TABLE 5-1 BASIN 1 BUILDINGS OF LIMITED CONCERN		
BLDG #	DESCRIPTION	TENANT
96	Transportation Office	Station/G-4
155	Grounds Equipment Shed	Installation
156	Storage Tank/Potable Water	Installation
174	Storage Tank/Potable Water	Installation
175	Storage Tank/Potable Water	Installation
299	GME/G-4	Installation
301	PW Administration/Labor Shop	Installation
304	Academic Instruction (EEO)	HRO
305	Group Headquarters	MWSG-37
309	Group Headquarters	MWSG-37
312	Photographic Building	Vacant
313*	Field Maintenance Shop	CSSD-14
	Storage out of Stores	MWSS-373
315	MWSS-473	
319	General Warehouse -MC (DRMO)	DRMO
	General Warehouse - Navy	Supply
321	General Warehouse - MC	Supply
324	Comm/MT/Const/TAFDS	MWSS-374
	Storage	Station/Fire
	CO2 Storage	Station/Fire
325*	Hazardous/Flammable Storehouse	FREST
326*	Hazardous/Flammable Storehouse	Environment
333	Field Maintenance Shop	CSSD-14
335	Water Distribution Building	Installation

TABLE 5-2
BASIN 1
SUMMARY OF BMPs

BLDG #	BASIN	BUILDING DESCRIPTION	TENANT	Concern Level	BMP STATUS	BMP #	BMP Description
					Rec	012	Construct Berm or Dike Around Critical Areas
					Rec	065	Place Spill Kit in Area
315	01	MWSS-473		Limited			No Additional BMPs are Recommended
317	01	Commissary Warehouse	DECA	Concern	Existing	009	Personnel Training
					Existing	112	Prepare Appropriate Spill Prevention and Response Plans
					Existing	005	Provide Regular Sweeping of Floor/Lot
					Rec	012	Construct Berm or Dike Around Critical Areas
					Rec	001	Label All Drums, Cans, Containers, Tanks, and Valves
					Rec	044	Use Drip Pans under Leaking Equipment
					Rec	032	Dispose of Surplus Materials/Wastes/Equipment or Store Under Cover
					Rec	065	Place Spill Kit in Area
317C1	01	Fenced Storage Yard	Federal Disposal Service	Concern	Rec	009	Personnel Training
					Rec	112	Prepare Appropriate Spill Prevention and Response Plans
					Existing	041	Wash Equipment and Vehicles in Designated Areas
					Rec	044	Use Drip Pans under Leaking Equipment
					Rec	032	Dispose of Surplus Materials/Wastes/Equipment or Store Under Cover
					Rec	065	Place Spill Kit in Area
317C2	01	Fenced Storage Yard	Miranda's Landscaping	Concern	Rec	009	Personnel Training

5.2 DRAINAGE BASIN 2

This drainage section comprises some of the buildings in Area 28. It has a total area of about 188 acres.

5.2.1 Buildings of Limited Concern

The following buildings do not use, handle, transport, or store significant quantities of industrial materials nor do they generate significant amounts of liquid or solid pollutants and they do not appear to be of concern to the quality of storm water discharges:

TABLE 5-3 BASIN 2 LIMITED CONCERN BUILDING LIST		
BLDG #	DESCRIPTION	TENANT
310	MWSS-473	MWSS-473
319	General Warehouse MC (DRMO)	DRMO
326	Hazardous Waste Storehouse	Environment
360	Storage MC Air/Ground Organic Unit	Supply
445	Hazardous/Flammable Storehouse	Vacant
446	Storage Tank/Nonpotable	Installation
599	Liquid Oxygen Facility	Supply
631	Utility/NBC Storage	MWSS-374
633	Loading/Unloading Ramp	DRMO
635	Weighing Facility	Supply
778*	Hazardous Waste Collection Facility	Environment
801	Dispatcher	MWSS-373
825*	Hazardous Waste Locker	MWSS-373

- * Buildings with an asterisk indicate facilities which were not involved in any industrial activities or did not store any hazardous materials at the time of our field observations. However, these facilities appear to have

TABLE 5-4
BASIN 2
SUMMARY OF BMPs

BLDG #	BASIN	BUILDING DESCRIPTION	TENANT	Concern Level	BMP STATUS	BMP #	BMP Description
295	02	Maint Hngr Space	HMM-764	Concern	Existing Existing Rec Existing Existing	009 112 004 005 065	Personnel Training Spill Prevention, Control, Countermeasures Plan Avoid Hosing Down Site Provide Regular Sweeping of Floor/Lot Place Spill Kit in Area
296	02	Maint Hngr Space	MAIS-46	Concern	Existing Existing Rec Rec Rec Existing Existing Existing	009 112 012 098 004 044 005 065	Personnel Training Prepare Appropriate Spill Prevention and Response Plans Construct Berm or Dike Around Critical Areas Construct Oil/Water Separator Avoid Hosing Down the Site Use Drip Pans under Leaking Equipment Provide Regular Sweeping of Floor/Lot Place Spill Kit in Area
310	02	MWSS-473	MWSS-473	Limited			No Additional BMPs Recommended
319	02	General Warehouse MC (DRMO)	DRMO	Limited			No Additional BMPs Recommended
324	02	Comm/MT/Const/	MWSS-374	Concern	Existing	009	Personnel Training

EXTRACTS

**FINAL
RECORD OF DECISION
OPERABLE UNIT 3B
NO ACTION SITES 7 AND 14
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA**

JUNE 2001

DECLARATION

SITE NAME AND LOCATION

Marine Corps Air Station El Toro
Operable Unit 3B Sites 7 and 14
Orange County, California

National Superfund Database Identification Number: CA 6170023208

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Sites 7 and 14 at Marine Corps Air Station El Toro in Orange County, California. The document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 and the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the administrative record file for these sites.

The state of California (through the California Environmental Protection Agency, Department of Toxic Substances Control, and Santa Ana Regional Water Quality Control Board) and the United States Environmental Protection Agency concur with the selected remedy.

DESCRIPTION OF THE SELECTED REMEDY: NO ACTION

The selected remedy for Sites 7 and 14 is no action. In selecting the no action remedy for these sites, the MCAS El Toro Base Realignment and Closure Cleanup Team, made up of representatives of the Marine Corps/Navy, United States Environmental Protection Agency, Department of Toxic Substances Control, and the Santa Ana Regional Water Quality Control Board, has determined that the existing condition of the sites is protective of human health and the environment.

Although shallow groundwater underlying these sites is contaminated by volatile organic compounds, including trichloroethene, carbon tetrachloride, and tetrachloroethene at Site 7 and trichloroethene and carbon tetrachloride at Site 14, remedial investigations have shown that the contamination present in groundwater does not originate from Sites 7 or 14 but lies within the Site 24, Volatile Organic Compound Source Area groundwater plume. Groundwater cleanup, including use restrictions that prohibit drilling of wells and/or extraction of groundwater and allow access for groundwater monitoring and maintenance of equipment associated with groundwater remediation, will be addressed in the Proposed Plan and Record of Decision for Sites 18 and 24.

DECLARATION STATEMENT

On the basis of extensive field investigations, laboratory analyses, and a thorough assessment of potential human-health risks at each location, the Base Realignment and Closure Cleanup Team has determined that no remedial action is necessary to assure the protection of human health and the environment at Sites 7 and 14. The remedial

Declaration

investigation of these sites showed that site-related contamination is limited to the shallow soil interval (0 to 10 feet below ground surface). The human-health risk assessments show that the contaminants present in soil do not present an unacceptable risk to human health or the environment. Therefore, no remedial action is required at these sites. Since hazardous substances are not present at concentrations above unacceptable levels, CERCLA Section 121 cleanup standards do not apply.

Signature: _____

Mr. Dean Gould

Base Closure and Realignment Environmental Coordinator
Marine Corps Air Station El ToroDate: 04 JUN 01

Signature: _____

Mr. John E. Scandura, Chief
Southern California Operations
Office of Military Facilities
Department of Toxic Substances ControlDate: 6/18/01

Signature: _____

Mr. Daniel A. Meer, Chief
Federal Facilities Cleanup Branch
United States Environmental Protection Agency, Region 9Date: June 6, 2001

Signature: _____

Mr. Gerald J. Thibeault
Executive Officer
Regional Water Quality Control Board, Santa Ana RegionDate: 6-26-01

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JUN 11 2001

Department of Toxic
Substances Controlreceived
7/9/01

Section 5

SUMMARY OF SITE CHARACTERISTICS

This section describes the regional characteristics of MCAS El Toro, and provides a brief history of the source of contamination at Sites 7 and 14, summarizes the sampling performed at these sites, and presents tables summarizing site-specific sampling results. Section 5 concludes with a discussion of current and potential future migration for chemicals of potential concern at the sites. A complete discussion of sampling locations and methodologies, compounds detected at each site, and the nature and extent of contamination appears in the Phase II Final RI Report for Sites 7 and 14 (BNI 2000).

The nature and extent of contamination at Sites 7 and 14 is based on the Phase I and II RI data presented in the final RI Report for Sites 7 and 14 (BNI 2000). The Phase I RI was conducted during 1992 and 1993. A Phase II RI conducted in 1997 included portions of Site 7. Additional Phase II investigation of Sites 7 and 14 was conducted during 1999. The Phase II investigation consisted of a review of data gathered previously and additional sampling and analysis designed to fill in data gaps from the Phase I investigation and to provide information necessary to conduct a baseline human-health risk assessment (HHRA).

Data collected during the Sites 7 and 14 RI include the results of shallow and deeper subsurface soils investigations, groundwater investigations, aerial photograph reviews, and interviews with MCAS El Toro personnel. A soil gas survey was also conducted at and in the vicinity of Site 7. This survey was associated with Site 24, the VOC Source Area. (Site 7 is within the boundary of Site 24.) The VOCs reported within the Site 7 boundaries were investigated and evaluated as part of the VOC source investigation at Site 24 and are discussed in the Interim ROD for that site (BNI 1997a).

5.1 REGIONAL CHARACTERISTICS

MCAS El Toro is situated on the southeastern edge of the Tustin Plain, a gently sloping surface of alluvial fan deposits derived mainly from the Santa Ana Mountains. The Tustin Plain, bounded on the north and east by the Santa Ana Mountains and on the south by the San Joaquin Hills, is at the southeast end of the Los Angeles Basin, a large sedimentary basin in the Peninsular Ranges Geologic Province. The elevation at MCAS El Toro ranges from 215 feet above mean sea level (MSL) in the west to approximately 800 feet above MSL to the east.

5.1.1 Geology and Hydrogeology

The Tustin Plain is a broad basin composed of Quaternary marine and alluvial sediments deposited on Tertiary marine sedimentary bedrock (Fife 1974). The Quaternary deposits are generally less consolidated and more permeable than the bedrock. The Tustin Plain is bound by bedrock exposed in the Santa Ana Mountains to the north and east and in the San Joaquin Hills to the south.

The Tertiary bedrock consists of semiconsolidated marine sandstones, siltstones, and conglomerates of the Sespe, Vaqueros, Topanga, Capistrano, Niguel, and Fernando formations (CDMG 1981). The lower-Pliocene Fernando formation forms the base of the water-bearing units at MCAS El Toro (Herndon and Reilly 1989). The Fernando

Section 5 Summary of Site Characteristics

Borrego Canyon Wash flows along the southeast boundary of MCAS El Toro. The wash is unlined in the Santa Ana Mountains and unlined downstream of Irvine Boulevard. Borrego Canyon Wash crosses the southern corner of the Station and joins Agua Chinon Wash about 1/4 mile downstream of the Station boundary.

Both Agua Chinon and the Bee Canyon Washes cross the central portion of MCAS El Toro and receive on-Station runoff mainly through storm sewers. These washes are contained in culverts through most of their pathways across the Station. Both washes are unlined along several hundred feet at the southwest edge of the Station and are lined again in a culvert beneath the Irvine Spectrum development adjacent to the southwestern boundary of the Station. Marshburn Channel is a lined drainage channel that runs along the northwestern boundary of MCAS El Toro. The channel receives runoff from the western part of the Station. All of the drainages ultimately discharge into San Diego Creek.

The MCAS El Toro Master Plan (Plan) indicates that much of the Station lies within the 100-year flood plain. Existing drainage systems were developed for agricultural use, not for the increased flows generated by the urban development now surrounding the base. Approximately 15 acres of an agricultural lease was flooded and crops were destroyed during a storm on 29 November 1997. The area included in the 100-year flood plain is shown in Figure 5-2.

5.1.3 Rainfall and Prevailing Wind Conditions

The mean average rainfall at MCAS El Toro is approximately 12.2 inches, most of which occurs from November through April (JEG 1993a). Because of the low average annual rainfall and high evapotranspiration rates, net infiltration from precipitation is less than 5 inches per year (BNI 1996c).

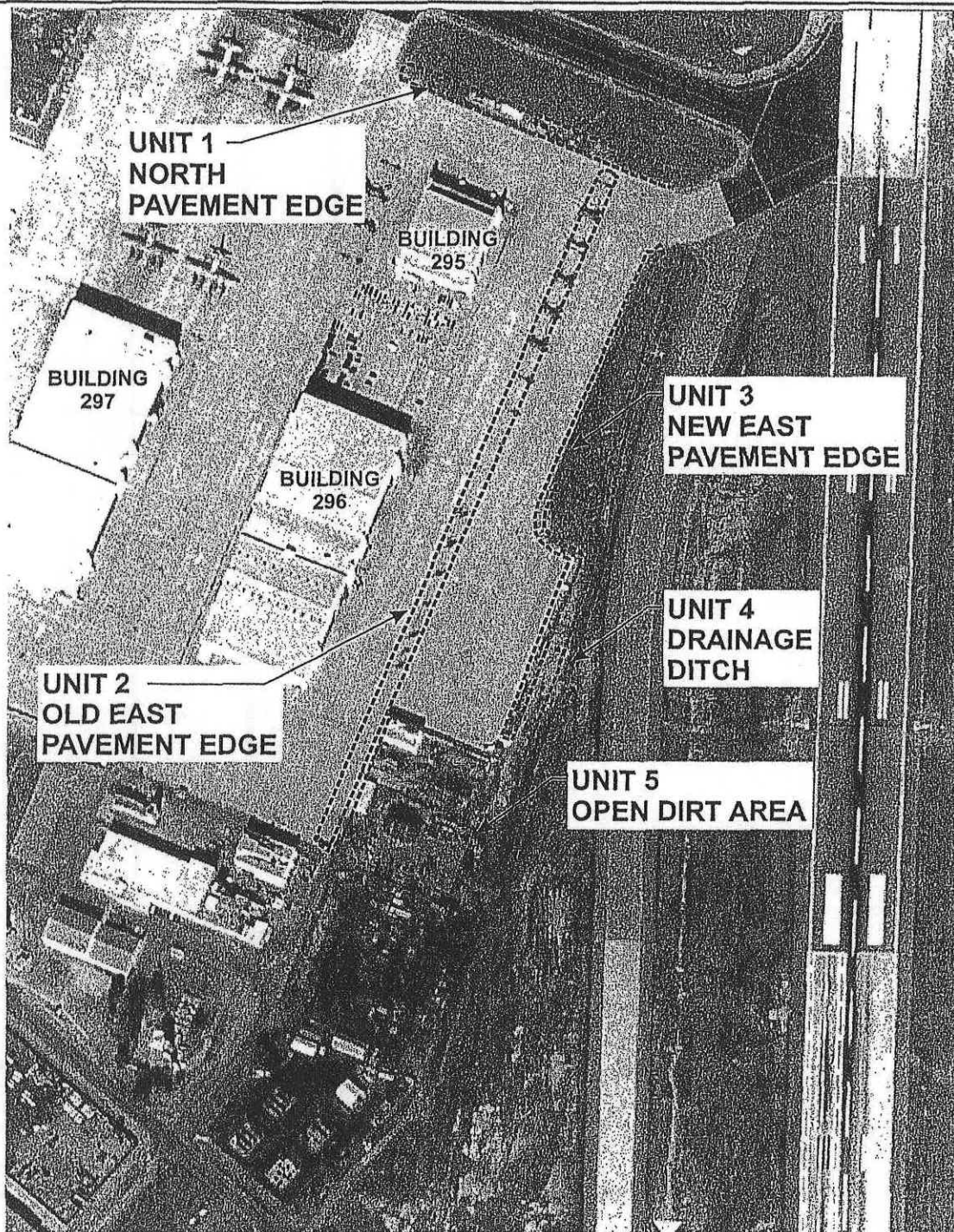
From March through October, the prevailing wind is from the west, averaging 6 knots. From November through February, the prevailing wind is from the east, averaging 4 knots. Strong, dry, gusty, offshore winds (locally known as "Santa Ana winds") are common during late fall and winter. The typically dry conditions and persistent winds may result in light to moderate wind erosion.

5.2 SITE 7, DROP TANK DRAINAGE AREA NO. 2

Site 7 is located in the southwestern quadrant of MCAS El Toro, north and west of Buildings 295 and 296, at an elevation of approximately 275 feet MSL. The approximate site area is 200,000 square feet. Most of the surface of Site 7 is unpaved and fairly well vegetated, but some paved areas are present as well as two small buildings. Site 7 is generally flat, and surface flow is induced only during significant rainfall events. Surface drainage is conveyed generally to the south toward Agua Chinon Wash.

5.2.1 Geology and Hydrogeology

A review of the RI boring logs indicates that the soil at Site 7 consists of poorly to well-graded sand, silty sand, and sandy silt. Soil in the area is classified as Sorrento loam,



SOURCE: AERIAL PHOTOBANK, INC.
SAN DIEGO, CALIFORNIA
DATE: 1/12/96

Record of Decision

Figure 5-3

Site Aerial Photograph (1/12/96)
Site 7 - Drop Tank Drainage Area No. 2

MCAS, El Toro, California



Bechtel National, Inc.
CLEAN II Program

Date: 11/14/00
File No: 164E5745
Job No: 22214-164
Rev No: B

U.S. EPA contractors. During these interviews, the following information pertaining to the Drop Tank Drainage Area No. 2 (Site 7) was obtained (JEG 1994c).

- A 500-gallon bowser was observed near the hazardous waste storage area. Mobile bowser tanks were commonly used throughout the Station to store waste oil collected from maintenance activities. A common practice was to spread the waste oil collected in these tanks onto unpaved areas of the Station for dust control.
- Some of these bowzers may have been misinterpreted as vertical tanks in the SAIC Aerial Photograph Report.
- Various types of equipment and chemical waste were stored in the areas east of Site 7. Some of the equipment included paint lockers, compressors, and pilot seat ejection charges. The types of chemicals included waste solvents, oils, and flammable materials.

5.2.3.6 PHASE II REMEDIAL INVESTIGATION

The Phase II RI consisted of a review of the previous investigations and additional sampling necessary to perform a baseline HHRA and determine whether remedial action is necessary at Site 7. As noted in Section 5.2.3.2, 49 shallow-soil samples were collected from 19 boring locations in Units 1 through 5 during the Phase I investigation. Another 91 shallow-soil samples were collected from 24 boring locations in Units 1, 3, 4, and 5 during the Phase II investigation. Phase II samples were collected at random locations to characterize additional areas not sampled during the Phase I RI. Fifteen samples from Units 4 and 5 were field screened for VOCs, TPH, and PAHs. Samples were also analyzed at a fixed-base laboratory for VOCs, SVOCs, PAHs, TPH, pesticides, and TAL metals.

A review of the Phase I analytical data for the deeper subsurface-soil samples suggested that the types and magnitude of analytes reported in the deeper subsurface soil beneath Site 7 did not pose a threat to groundwater. Therefore, in accordance with the Phase II Work Plan and with concurrence from the BCT, conditions within the deeper subsurface-soil interval were not investigated further during the Phase II RI.

Results for Phase II shallow-soil samples are summarized as follows.

- Eleven VOCs were reported above detection limits at concentrations up to 72 micrograms per kilogram ($\mu\text{g/kg}$) in shallow-soil samples from Units 1, 3, 4, and 5.
- Twenty-two SVOCs and 13 PAHs were reported above detection limits at concentrations up to 7,000 $\mu\text{g/kg}$ in shallow-soil samples from Units 1, 3, 4, and 5.
- Diesel and motor oil were reported above detection limits at concentrations up to 3,800 milligrams per kilogram (mg/kg) in shallow-soil samples from Units 1, 3, 4, and 5.
- Sixteen of the 23 TAL metals (aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver,

Section 5 Summary of Site Characteristics

thallium, and zinc) were reported at concentrations above their respective background values in shallow-soil samples from Units 1, 3, 4, and 5.

5.2.3.7 SUMMARY OF PHASE I AND PHASE II RESULTS

Table 5-1 summarizes the results of the Phase I and Phase II soil investigations at Site 7. The HHRA performed during the RI (Section 7) showed PAHs and TAL metals above background were the predominant risk drivers at Site 7. Figures 5-4 and 5-5 show the location and concentration of PAHs and TAL metals reported in shallow soil at each unit.

The Phase I and II results are summarized by unit as follows.

Unit 1, North Pavement Edge

VOCs, SVOCs, PAHs, petroleum hydrocarbons, and TAL metals at concentrations above background were reported in shallow-soil samples at Unit 1. While VOC concentrations less than 54 µg/kg and TAL metal concentrations above background were reported throughout the 0- to 10-foot bgs soil interval, SVOC, PAH, and petroleum hydrocarbon concentrations generally decreased with depth throughout the same soil interval.

Unit 3, New East Pavement Edge

VOCs, SVOCs, PAHs, pesticides, petroleum hydrocarbons, and TAL metals at concentrations above background were reported in shallow soil throughout Unit 3. While VOCs and SVOCs above detection limits and TAL metals above background were reported throughout the 0- to 10-foot bgs soil interval, no PAH or petroleum hydrocarbon was reported above detection limits below a depth of 6.75 feet bgs. The highest diesel and motor oil concentrations, ranging from 150 to 2,300 mg/kg, were reported in samples collected from a depth of 6 to 6.75 feet bgs in the south end of Unit 3.

Unit 4, Drainage Ditch

VOCs, PAHs, petroleum hydrocarbons, and pesticides were reported above detection limits in shallow-soil samples at Unit 4. TAL metals at concentrations above background levels were distributed in soil samples collected throughout the 0- to 10-foot-bgs shallow-soil interval. With the exception of toluene, VOC, PAH, pesticide, and petroleum hydrocarbon constituents were not reported above detection limits in samples collected from depths greater than 2 feet bgs.

Section 5 Summary of Site Characteristics

Table 5-1
Chemicals Reported in Soil at Site 7

Analyte Name	Number of Samples	Number of Detections	Maximum Concentration (mg/kg)	Station ID/Depth (feet bgs)
Volatile Organic Compounds				
1,1,1-trichloroethane	101	3	0.0015	07B403/0 - 1
Acetone	34	14	0.064	07_GN1/0
Benzene	101	1	0.009	07_ST2/0
Carbon tetrachloride	101	2	0.002	07_STDB/0
Chloroform	101	10	0.0054	07B104/6 - 6.75
Chloromethane	101	1	0.044	07B313/2 - 2.75
Ethylbenzene	101	1	0.0025	07B303/2 - 2.75
Methylene chloride	67	29	0.072	07B307/2 - 2.75
Tetrachloroethene	67	11	0.013	07B308/6 - 6.75
Toluene	67	43	0.014	07_GN3/0; 07_DD1/0
Xylene (total)	34	1	0.003	07B307/9.25 - 10
o-xylene	67	13	0.004	07B105/2 - 2.75; 07B311/5.25 - 6
m,p-xylene	67	17	0.010	07B307/9.25 - 10
Petroleum Hydrocarbons				
Diesel	130	32	686	07_ST2/0
Gasoline	46	10	2.68	07_ST2/0
TRPH	35	12	32,091 ^a	07_GN1/0
Motor oil	94	34	3,800	07B105/0.5 - 1
Semivolatile Organic Compounds				
Benzoic acid	84	7	0.067	07B314/6 - 6.75
Carbazole	118	10	0.7	07B103/0.75 - 1.25
Phenol	118	2	0.08	07B103/2 - 2.75
bis(2-ethylhexyl)phthalate	118	70	1.4	07_GN1/0
Butylbenzyl phthalate	118	8	0.22	07B102/0.75 - 1.5
Diethyl phthalate	118	1	0.24	07_GN2/2
di-n-butyl phthalate	118	11	0.049	07B102/0.75 - 1.5
di-n-octyl phthalate	118	4	0.083	07B303/2 - 2.75
Polynuclear Aromatic Hydrocarbons^b				
Anthracene	128	8	0.180	07B102/0.75 - 1.5
Benz(a)anthracene	128	33	2.8	07B103/0.75 - 1.25
Benzo(a)pyrene	128	41	4.0	07B103/0.75 - 1.25
Benzo(b)fluoranthene	128	41	5.4	07B103/0.75 - 1.25

(table continues)

Section 5 Summary of Site Characteristics

Table 5-1 (continued)

Analyte Name	Number of Samples	Number of Detections	Maximum Concentration (mg/kg)	Station ID/Depth (feet bgs)
Benzo(g,h,i)perylene	128	47	6.9	07_GN1/0
Benzo(k)fluoranthene	128	36	5.4	D7B103/0.75 – 1.25
Chrysene	128	41	3.9	07B103/0.75 – 1.25
Dibenz(a,h)anthracene	128	35	3.8	07B305/2 – 2.75
Fluoranthene	128	41	7.0	07B103/0.75 – 1.25
Fluorene	128	5	0.13	07B103/0.75 – 1.25
Indeno(1,2,3-c,d)pyrene	128	47	2.1	07B103/0.75 – 1.25
Phenanthrene	128	30	3.1	07B103/0.75 – 1.25
Pyrene	128	45	7.0	07B103/0.75 – 1.25
Pesticides				
4,4'-DDD	134	12	0.163	07_ST1/0
4,4'-DDE	134	19	0.31	07B314/2 – 2.75
4,4'-DDT	134	25	0.69	07B314/2 – 2.75
Dieldrin	134	2	0.0253	07_GN1/0
Endosulfan I	134	1	0.0015	07B401/0 – 1
Endosulfan sulfate	134	3	0.0669	07_GN1/0
Endrin	134	1	0.0065	07_GN1/0
Endrin ketone	134	5	0.018	07B102/0.75 – 1.5
gamma-chlordane	134	1	0.018	07B102/0.75 – 1.5
Methoxychlor	134	4	0.069	07B103/0.75 – 1.25
TAL Metals				
Aluminum	138	138	23,700	07B402/8 – 10
Antimony	138	9	3.3	07_DBMW70/10
Arsenic	138	130	9.4	07B101/0 – 0.5
Barium	138	137	2,270	07B103/0.75 – 1.25
Beryllium	138	111	0.96	07_DBMW70/10
Cadmium	138	132	6	07_STDB/0
Chromium	138	138	68.5	07B309/2 – 2.75
Cobalt	138	138	9.5	07_DBMW70/5
Copper	138	135	2,110	07B105/0.5 – 1
Lead	138	138	931	07_GN1/0
Manganese	138	138	423	07_DBMW70/5
Mercury	138	9	0.67	07B302/9.25 – 10
Nickel	138	138	142	07B101/4.75 – 5.5
Selenium	138	33	1.8	07B310/2 – 2.75

(table continues)

Table 5-1 (continued)

Analyte Name	Number of Samples	Number of Detections	Maximum Concentration (mg/kg)	Station ID/Depth (feet bgs)
Silver	138	27	2.3	07B310/2 – 2.75
Thallium	138	95	2.4	07B310/2 – 2.75
Vanadium	138	138	69.1	07B401/5 – 7
Zinc	138	138	1,810	07B101/4.75 – 5.5

Notes:

- ^a soil sample collected below this sample at 2 feet bgs reported a TRPH concentration of 1,007 mg/kg.
- ^b the number of detections for polynuclear aromatic hydrocarbons is based on the higher of the detections from the polynuclear aromatic hydrocarbon and semivolatile organic compound analyses when both analyses were conducted on a single sample

Acronyms/Abbreviations:

- bgs – below ground surface
- DDD – dichlorodiphenyldichloroethane
- DDE – dichlorodiphenyldichloroethene
- DDT – dichlorodiphenyltrichloroethane
- mg/kg – milligrams per kilogram
- TAL – target analyte list
- TRPH – total recoverable petroleum hydrocarbons

Unit 5, Open Dirt Area

- VOCs, SVOCs, PAHs, pesticides, petroleum hydrocarbons, and TAL metals with concentrations above background were reported in shallow-soil samples at Unit 5.
- SVOCs and PAHs were predominately identified in samples collected from one boring in the northwest corner of Unit 5. VOCs were reported sporadically at relatively low concentrations. Pesticides, SVOCs, and PAHs were not reported above detection limits in soil samples from depths greater than 2 feet bgs. TAL metals above background were present through the shallow-soil interval but were predominately identified in samples collected from the upper 5 feet bgs, with the highest concentrations and reporting frequency in surface samples.

During the Phase I RI, a concentration of 32,091 mg/kg of TRPH was reported in the soil sample collected at 0 feet bgs at boring location 07_GN1 in Unit 5. Chemical analyses of this soil sample also reported concentrations of five SVOCs above 0.73 mg/kg and concentrations of 426 mg/kg of TPH as diesel and 0.089 mg/kg of TPH as gasoline. The only VOCs reported in this soil sample were toluene and acetone both reported below a concentration of 0.065 mg/kg. The chemical analyses of the soil sample collected below this sample at 2 feet bgs reported a concentration of 1,007 mg/kg of TRPH and concentrations of SVOCs, VOCs, TPH as gasoline, and TPH as diesel below the reported detection limits for these compounds. During the Phase II RI, visual observations around the area of this sample suggested that a large surface release had not occurred in this area.

Section 5 Summary of Site Characteristics

Although the results of the chemical analyses of soil samples collected from boring location 07_GN1 do not indicate that contamination represents a threat to groundwater present at approximately 120 feet bgs at this location, the RWQCB has requested further evaluation of the petroleum hydrocarbons at this sample location. Therefore, the DON will conduct further investigation under the MCAS El Toro Petroleum Release Corrective Action Program. This investigation does not impact the no action status of this site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

5.3 SITE 14, BATTERY ACID DISPOSAL AREA

Site 14 is located approximately 50 feet southwest of Building 245 at the western edge of MCAS El Toro (Figure 5-6). The site is currently an unmaintained vegetated area. It is relatively level and lies at an elevation of about 270 feet above MSL. The approximate site area is 600 square feet. Building 245 was a heavy equipment maintenance shop that is currently empty, and Site 14 is inactive. An asphalt parking area extends from Building 245 south to the edge of Site 14. Surface drainage in this parking area is to the south along the pavement to its edge, then down a slight embankment to a drainage ditch. The ditch extends west to a culvert that drains to Marshburn Channel. A catch basin near the drainage ditch was sampled during the Phase I RI and found to receive no surface-water runoff from the Battery Acid Disposal Area (JEG 1993a).

5.3.1 Geology and Hydrogeology

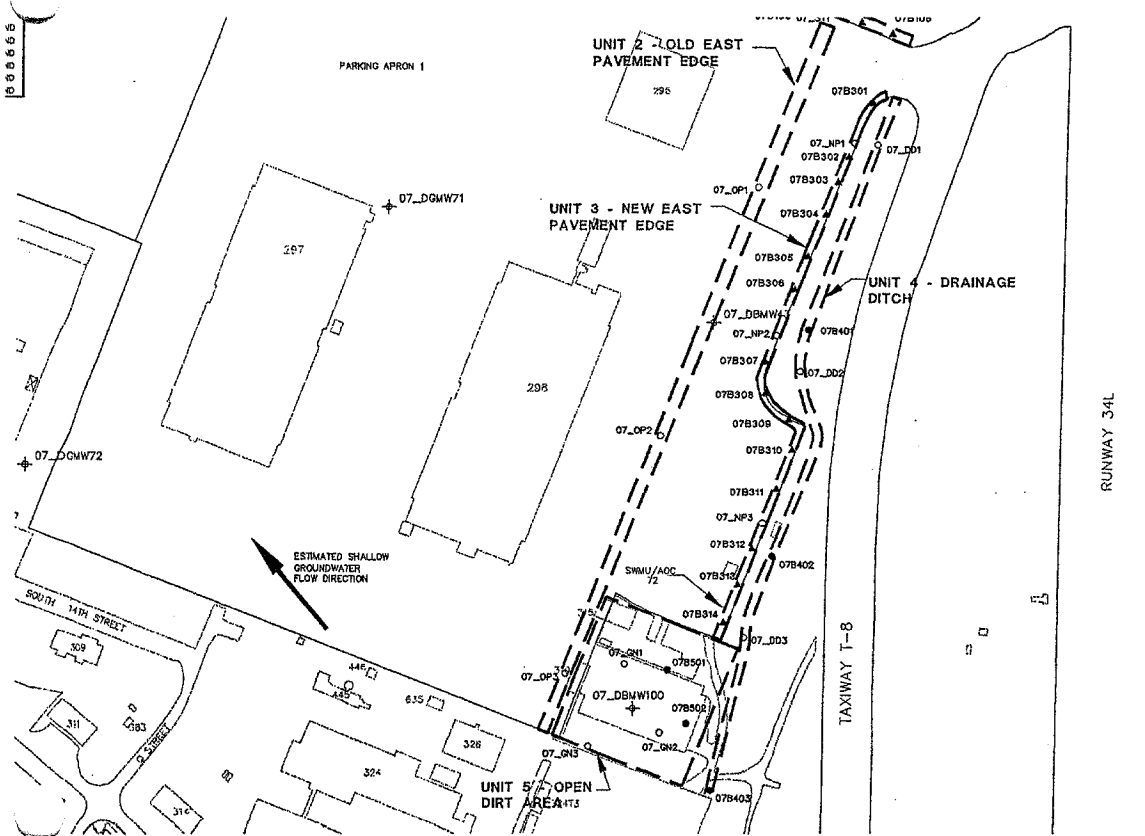
The Phase I RI boring logs show that the subsurface lithology at Site 14 consists of moderately to well-graded clayey to silty sand that is interbedded with sandy silt and clay. Soil in the area of Site 14 is classified as Sorrento loam. Sorrento loam soils are generally well-drained alluvial fan and floodplain sediments in areas nearly level to moderately sloping. This soil type is moderately well drained with a percolation rate of 2 to 6 inches per hour in the upper 1 foot. Runoff is regarded as slow, and the erosion hazard is slight for the Sorrento loams (Wachtell 1978). Surface drainage at Site 14 is conveyed to a storm drain that flows into Marshburn Channel.

On the basis of the boring log and gauging data collected from monitoring well 14_DBMW50 (CDM 1997), the shallow groundwater unit is assumed to be present at a depth of approximately 115 feet bgs in the area of Site 14, and the groundwater flow is assumed to be generally to the west-northwest.

5.3.2 Site History

Site 14 consists of Unit 1, a battery acid disposal area associated with Building 245, and a separate catch basin. From 1977 through 1983, fluids from facility vehicle batteries, paints, and associated paint wastes were drained onto the unpaved ground surface beyond the edge of the parking area. Also, when the asphalt parking area was washed down, contaminated surface water runoff drained over the edge of the pavement onto an unpaved area. This unpaved area sloped to a culvert that drains to Marshburn Channel.

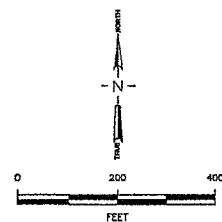
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- IMPROVED ROADS
- UNIT BOUNDARY
- PHASE I MONITORING WELL
- PHASE I SHALLOW SOIL BORING (JACOBS, 1982)
- PHASE II SHALLOW SOIL BORING (BNL, 1993)
- PHASE III SHALLOW SOIL BORING (BNL, 1993)

UNIT 5		Station ID		07B501		07B502	
PHASE II	Top Depth (feet bgs)	ANALYZE	CONCENTRATION (micrograms per kilogram)	0		0	
	Bottom Depth (feet bgs)			1		1	
				4.1		19	
BENZ(A)ANTHRACENE	1			19		ND	
BENZ(A)FLUORANTHENE	1			45		ND	
BENZ(A)PYRENE	1			45		ND	

NOTE: ALL VALUES ARE IN MICROGRAMS PER KILOGRAM (ug/kg)
ND = NOT DETECTED
- = NOT ANALYZED



UNIT 4		Station ID		07B401		07B402		07B403	
PHASE II	Top Depth (feet bgs)	0	3	6	9	0	3	6	9
	Bottom Depth (feet bgs)	1	5	10	15	1	5	10	15
BENZ(A)ANTHRACENE	34	ND	--	--	ND	ND	--	11	--
BENZ(B)FLUORANTHENE	34	ND	--	--	4	ND	--	23	--
BENZ(A)PYRENE	34	ND	--	--	4	ND	--	19	--
BENZ(B)FLUORANTHENE	37	ND	--	--	54	ND	--	19	--
BENZ(B)FLUORANTHENE	38	ND	--	--	ND	ND	--	8.1	--
CHRYSENE	40	ND	--	--	ND	ND	--	18	--
DIENANTHRA(1,2,3-C)PYRENE	46	ND	--	--	ND	ND	--	18	--
INDENOL(1,2,3-C)PYRENE	28	ND	--	--	ND	ND	--	18	--

SOUTHWESTNAVFACENGCOM
Code 06CC.LMH
1220 Pacific Highway
San Diego, California 92132-5190

File: etsummaryrptSite07GN1Nov2001

ATTACHMENT 3

Site Assessment Report dated November 2001

**Site Assessment Report for Site 07GN1
at
Marine Corps Air Station El Toro
California**

**General Services Administration Contract Number: GS-10F-0227J
Delivery Order: N68711-00-F-0106**

Prepared for:


DEPARTMENT OF THE NAVY
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, California 92132

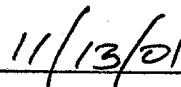
Prepared by:


CDM FEDERAL PROGRAMS CORPORATION
3760 Convoy Street, Suite 210
San Diego, California 92111

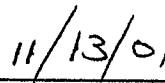
13 November 2001

Site Assessment Report for Site 07GN1
at
Marine Corps Air Station El Toro
California


Prepared by:
Matthew Brookshire
CDM Federal Programs Corporation
Environmental Scientist


Date


Approved by:
Larry Davidson, P.E.
CDM Federal Programs Corporation
Project Manager


Date

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Executive Summary

This report describes the site assessment of Site 07GN1 performed at the Marine Corps Air Station (MCAS) El Toro, California. CDM Federal Programs (CDM Federal) performed the work for Southwest Division Naval Facilities Engineering Command (SWDIV) under General Services Administration Contract No. GS-10F-0227, Delivery Order N68711-00-F-0106.

Sampling activities were performed at Site 07GN1 to investigate for the presence of volatile organic compounds (VOCs) and total petroleum hydrocarbons (TPH). All fieldwork was performed in accordance with the procedures identified in the Final Work Plan (CDM Federal 2000). A total of four depth-discrete soil samples (0 and 2 feet below ground surface) were collected from two borings.

Soil samples were analyzed for TPH modified methods for diesel, motor oil and gasoline using United States Environmental Protection Agency (USEPA) Method 8015M, and VOCs using USEPA Method 8260B. Analytical results from the soil samples indicated the following TPH and VOC results:

	Analyte	Detection Range	Regulatory Limits
TPH	Diesel	0.04-23 (mg/kg)	10,000 ^(a) (mg/kg)
	Gasoline	0.03 - 0.04 (mg/kg)	1,000 ^(a) (mg/kg)
	Motor Oil	10-140 (mg/kg)	10,000 ^(a) (mg/kg)
VOCs	Acetone	7-34 (µg/kg)	1600 ^(b) (µg/kg)
	Methyl ethyl ketone	ND-7 (µg/kg)	7300 ^(b) (µg/kg)
	Methylene chloride	3-6 (µg/kg)	8.9 ^(b) (µg/kg)
	toluene	ND-0.9 (µg/kg)	520 ^(b) (µg/kg)

Notes:

mg/kg = milligrams per kilogram

ND = non-detect

µg/kg = micrograms per kilogram

(a) Source: State of California LUFT Field Manual, 1989

(b) Source: U.S. EPA Region 9 PRGs Table 2000 Update

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Contents

Executive Summary

Acronyms and Abbreviations

Section 1	Introduction	1-1
1.1	Site Description	1-1
1.2	Site History	1-1
1.3	Site Assessment	1-2
Section 2	Site Activities	2-1
2.1	Soil Investigation.....	2-1
2.1.1	Soil Sampling	2-1
2.1.2	Soil Analyses and Methods	2-1
2.2	Sample Handling and Documentation	2-2
2.3	Quality Assurance.....	2-2
2.3.1	Field Duplicate	2-2
2.3.2	Trip Blank.....	2-3
Section 3	Conclusions and Recommendations	3-1
Section 4	References.....	4-1

Contents (Continued)

Tables

2-1	Summary of Soil Sample Results from Site 07GN1.....	2-4
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Figures

1-1	Area Location Map	1-3
1-2	Site 07GN1 Site Map	1-4
2-1	Sample Results for TPH and Detected VOCs	2-5

Appendices

Appendix A	Analytical Results
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Acronyms and Abbreviations

ASTM	American Society for Testing and Materials
APCL	Applied Physics and Chemistry Laboratory
BCT	Base Realignment and Closure Clean-up Team
bgs	below ground surface
CDM Federal	CDM Federal Programs Corporation
COC	chain-of-custody
°C	Degrees Celsius
ID	identification
IRP	Installation Restoration Program
MCAS	Marine Corps Air Station
mg/L	milligrams per liter
mg/kg	milligrams per kilogram
MTBE	Methyl Tertiary Butyl Ether
8015M	8015-modified
ND	not detected
P.E.	Professional Engineer
ROD	Record of Decision
QC	quality control
SA	Site Assessment
SB	Soil Boring
SOPs	Standard Operating Procedures
SWDIV	Southwest Division
TPH	Total Petroleum Hydrocarbons
µg/L	micrograms per liter
µg/kg	micrograms per kilogram
U.S.	United States
USEPA	U.S. Environmental Protection Agency
VOC(s)	Volatile Organic Compound(s)

Section 1

Introduction

This Site Assessment (SA) Report describes field activities and results for Site 07GN1 at the Marine Corps Air Station (MCAS) El Toro, California. The work was performed by CDM Federal Programs Corporation (CDM Federal) performed for Southwest Division Naval Facilities Engineering Command (SWDIV) under General Services Administration Contract No. GS-10F-0227J, Delivery Order N68711-00-F-0106.

1.1 Site Description

MCAS El Toro is situated in a semi-urban agricultural area in southern California, approximately 8 miles southeast of the city of Santa Ana and 12 miles northeast of the city of Laguna Beach (Figure 1-1). MCAS El Toro occupies 4,738 acres comprising runways, aircraft maintenance and training facilities, ground-support and construction equipment maintenance facilities, housing, shopping facilities, and other support facilities, all of which are mostly vacant due to the base closure.

Site 07GN1 is located next to Buildings 310 and 315 on the east side, south of former Building 316. The site area is adjacent to an asphalt-paved parking lot and is considered an open dirt area. The local topography is characterized as urban industrial construction with office buildings, having low bush, shrubs and noticeable natural stressed vegetation (due to climatic conditions).

1.2 Site History

In March 1943, MCAS El Toro was commissioned as a Marine Corps pilot fleet operation training facility. In 1950, MCAS El Toro was selected for development as a master jet station and permanent center for Marine Corps aviation on the west coast to support the operations and combat readiness of Pacific Fleet Marine Forces. Since commissioning, MCAS El Toro has been utilized for aviation activities. Other activities that have been performed on the base include aircraft maintenance and refurbishing operations, metal plating, sewage treatment, and incineration of trash. These activities have generated waste oils, paint residues, hydraulic fluid, used batteries, and other wastes.

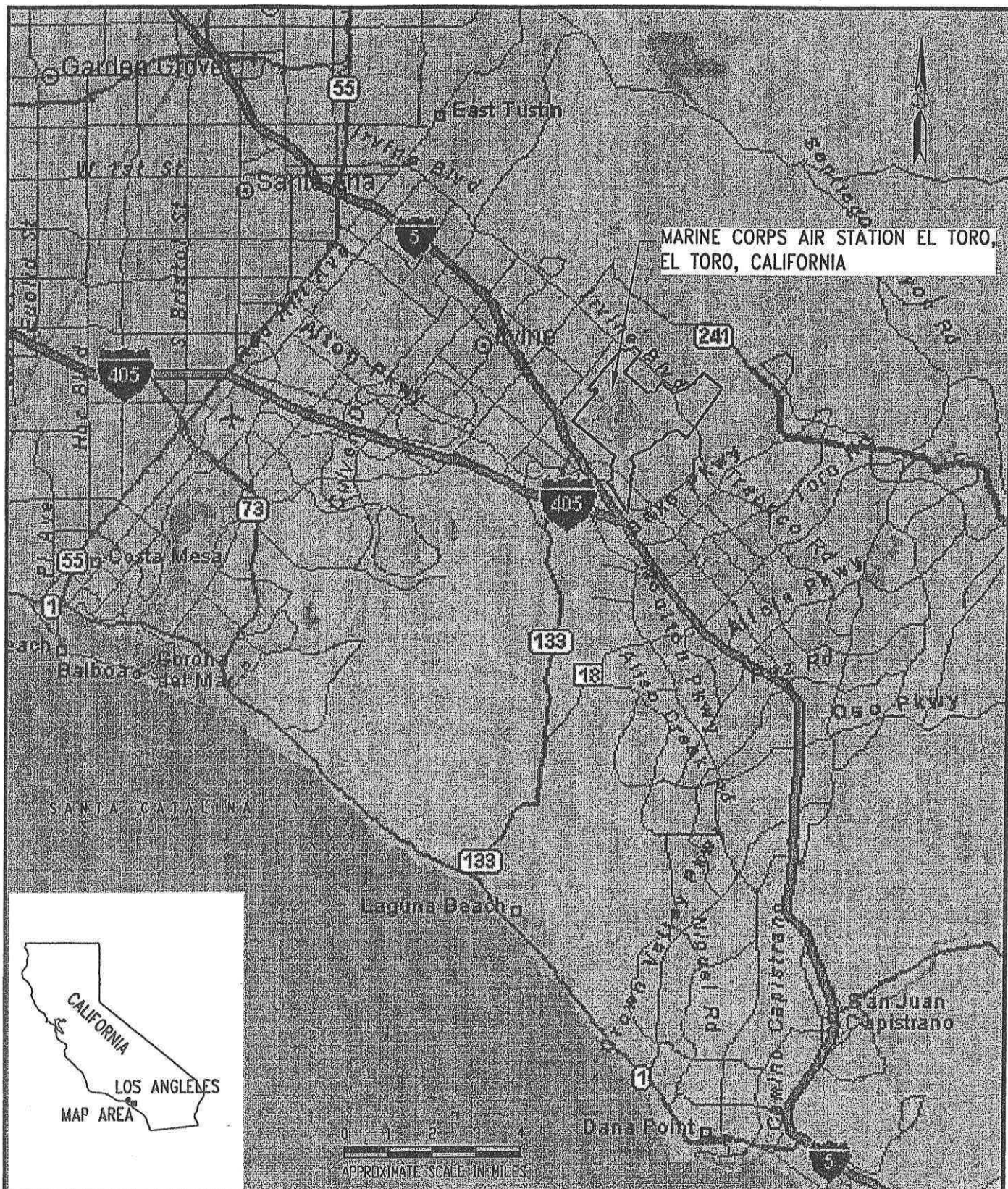
In March 1993, MCAS El Toro was placed on the Base Closure and Realignment Act list of proposed military facilities considered for base closure and was formally selected for closure in September of that year. During 1998 and early 1999, all of the aircraft squadrons were transferred to other Marine Corps and Naval Air Stations. All remaining military operations ceased when MCAS El Toro formally closed on 02 July 1999.

Site 07GN1 is located within the investigation boundary of Installation Restoration Program (IRP) Site 7, Unit 5 (Drop Tank Drainage Area Number 2, Open Dirt Area). Additionally, Site 07GN1 is located within the investigation boundary of IRP Site 24 – the Volatile Organic Compound (VOC) Source Area. The site is located along a fence line between Buildings 310 and 315. Building 310, vacant since July 1999, was used for vehicle maintenance support according to the 1997 building guide. Building 315, also vacant since July 1999, was used as a squadron headquarters according to the 1997 building guide.

A Final Record of Decision (ROD) for no action at IRP Site 7 was signed in June 2001. During the development of the Final ROD, the members of the Base Realignment and Closure Cleanup Team (BCT) agreed that additional investigation of the area at sample location 07GN1 (Site 07GN1) would be conducted under the Petroleum Corrective Action Program with oversight by the Regional Water Quality Control Board, Santa Ana Region.

1.3 Site Assessment

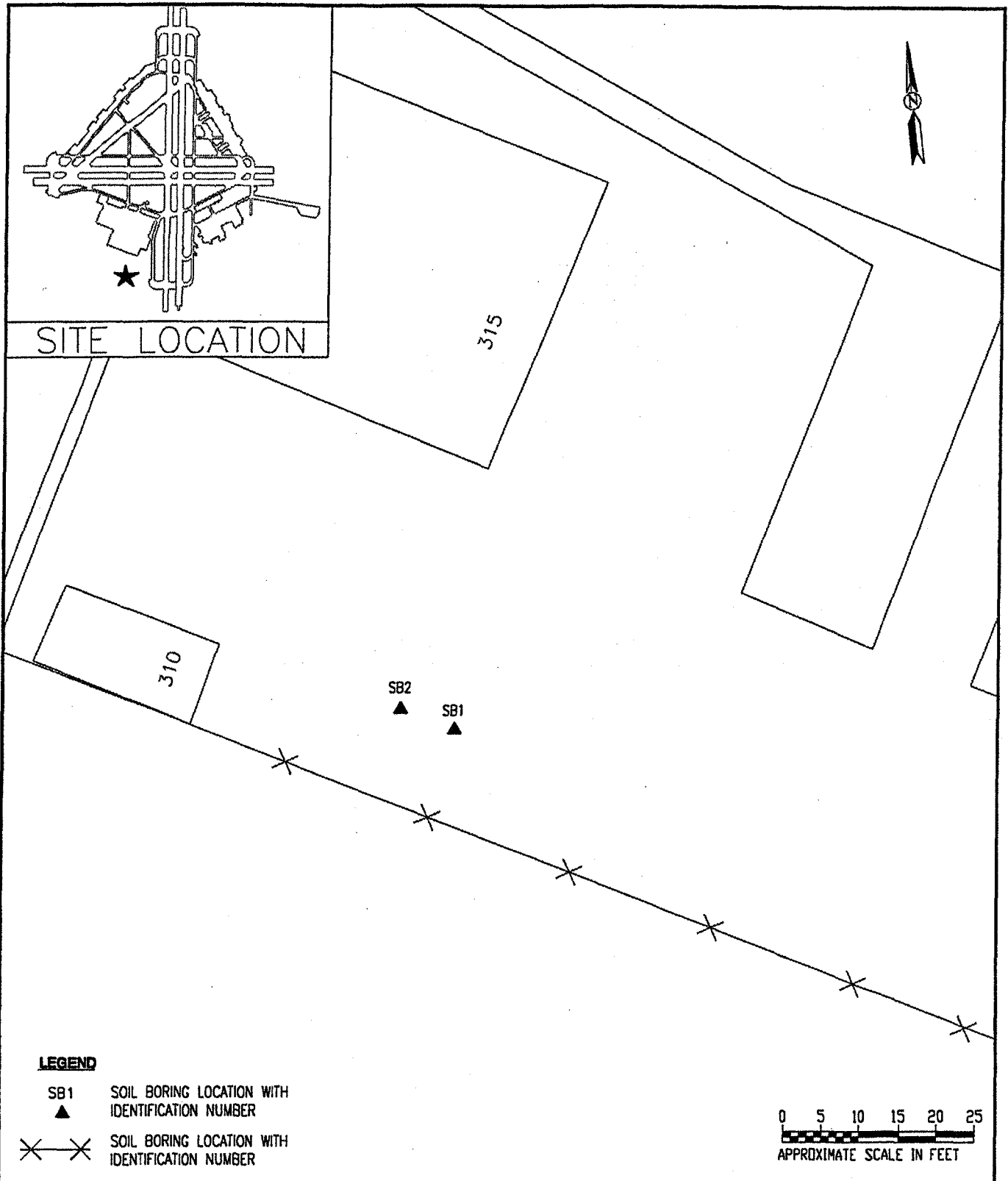
CDM Federal performed soil sampling from two soil borings (SB1 and SB2) located east of Building 310 and between Buildings 310 and 315 to assess the horizontal and vertical extent of potential soil contamination. A total of two depth-discrete soil samples (0.0-0.5 feet and 1.5-2 feet below ground surface [bgs]) were collected for each soil boring. Two surface soil samples were collected using a decontaminated scoop, and three subsurface soil samples (two primary samples and one duplicate sample) were collected using a decontaminated hand auger. Soil samples were analyzed for VOCs, including methyl tertiary butyl ether (MTBE) using USEPA Method 8260B, total petroleum hydrocarbons (TPH) modified for diesel and motor oil using USEPA Method 8015M, and TPH modified for gasoline using USEPA Method 8015M.



MARINE CORPS AIR STATION EL TORO,
EL TORO, CALIFORNIA



MCAS EL TORO EL TORO, CALIFORNIA		AREA LOCATION MAP		FIGURE 1-1
CDM Federal Programs Corporation				
MODIFIED BY: J. Brown		DATE: 06/01	SA/NAVY EL TORO LOC MCAS El Toro, California	
PROJECT NO.	1801-001	FN: 001_1-1		



MCAS EL TORO ELTORO, CALIFORNIA			SITE 07GN1 SITE MAP SA/NAVY EL TORO LOC MCAS El Toro, California	FIGURE 1-2
CDM Federal Programs Corporation	DATE: 11/01			
	FN: 003_1-2			
	MODIFIED BY: J. Brown	PROJECT NO. 1801-003		

Section 2

Site Activities

CDM Federal performed field activities at Site 07GN1 to investigate the horizontal and vertical extent of contamination. Fieldwork was performed in accordance with the following approved final documents: Technical Memorandum for Site 07GN1 (SWDIV 2001) and the Final Work Plan (Work Plan) for Site Assessment at Building 392 (CDM Federal 2000).

2.1 Soil Investigation

For this field investigation, a total of two soil borings (SB1 and SB2) were sampled to characterize surface and subsurface soil conditions and evaluate the extent of soil contamination at the site. The locations of the soil borings are shown on Figure 1-2.

2.1.1 Soil Sampling

Two surface soil samples were collected using a hand scoop. Subsurface soil samples were collected using a hand auger. Soil sampling was accomplished following the procedures described in the Field Sampling Plan (FSP) included in the Work Plan (CDM Federal 2000).

2.1.2 Soil Analyses and Methods

A total of five depth-discrete soil samples were collected from two borings completed during the investigation. Of these five soil samples, four were primary site samples and one was a field quality control (QC) duplicate sample.

The samples were submitted for analysis for fuel and waste contaminants using the following analyses and methods:

- TPH, using USEPA Method 8015M for volatile (gasoline) and extractable (diesel and motor oil) phases;
- VOCs, including MTBE, using USEPA Method 8260B.

Applied Physics and Chemistry Laboratory (APCL) of Chino, California analyzed the soil samples collected for chemical analysis. The analytical report is presented in Appendix A.

Analytical soil results indicated there were other compounds present at low concentrations (i.e., 2-butanone (MEK), acetone, methylene chloride, and toluene). All four VOC analytes were qualified as estimated, except for the methylene chloride in the

surface sample at SB1, and all were detected below their respective USEPA Region IX residential preliminary remediation goals (PRGs). In addition, methylene chloride is known to be a common laboratory contaminant. All results for VOC detections are shown in Table 2-1.

Soil sampling results indicate low concentrations of TPH to be present at Site 07GN1. Motor oil concentrations between 6 milligrams per kilogram (mg/kg) and 140 mg/kg were detected in the four soil samples and the one duplicate soil sample collected. Diesel was detected at concentrations of 5 mg/kg and 23 mg/kg in the two surface soil samples and was non-detect in the 2-foot bgs samples. Gasoline was detected at low concentrations that have been qualified as estimated in all four soil samples and the one duplicate soil sample collected. All TPH concentrations are below levels of concern. All results for TPH detections are shown in Table 2-1.

2.2 Sample Handling and Documentation

All samples were labeled and handled as described in the Work Plan (CDM Federal 2000). Samples were labeled with the following information: sample ID, analyses required, sample matrix, preservative, date and time sampled, and the initials of CDM Federal employees who performed the sampling. Labels were affixed to the sleeve and taped with clear packing tape to avoid water damaging the label immediately after sampling.

Samples were packaged and shipped in accordance with CDM Federal's Standard Operating Procedures. Soil samples were placed in self-sealing plastic bags. Sample IDs and analytical requests were recorded on the appropriate chain-of-custody (COC) form, and after all labeling and custody information were verified, the samples were placed in insulated coolers for shipment to the analytical laboratory. Adequate ice was used to maintain cooler temperatures at $4\pm 2^{\circ}\text{C}$ during shipment. The cooler was adequately sealed and a signed custody seal was applied to the cooler lid for security and accountability.

2.3 Quality Assurance

Field QC samples collected for this site assessment include a field duplicate and trip blank.

2.3.1 Field Duplicate

One duplicate sample was collected from SB2 at a depth of 2 feet bgs. The results of the duplicate sample compare closely to the results of the primary sample. All detections are within the identified $\pm 35\%$ relative percent difference as identified in the Work Plan (CDM Federal 2000).

2.3.2 Trip Blank

A trip blank sample was provided by the analytical laboratory in a sealed, 40-mL vial. It was filled with American Society for Testing and Material (ASTM) deionized water and preserved with hydrochloric acid. The trip blank was included with samples for VOC analysis. Trip blank analysis checked whether any potential contaminants had been introduced into site samples during sample shipping to the laboratory. The trip blank was only analyzed for VOCs. Methylene chloride was detected at an estimated concentration of 1 µg/L. Methylene chloride is a known laboratory contaminant.

Table 2-1
Summary of Soil Sample Results from Site 07GN1

Constituent	07GN1-SB1-0	07GN1-SB1-2	07GN1-SB2-0	07GN1-SB2-2	07GN1-SB2-2D (duplicate)
<i>TPH - (mg/kg)</i>					
gasoline range	0.04 J	0.03 J	0.05 J	0.03 J	0.04 J
diesel range	5J	ND	23	ND	ND
oil range	62	6 J	140	14	10 J
<i>VOC - (µg/kg)</i>					
MEK	7 J	ND	ND	ND	ND
acetone	34 J	12 J	7 J	9 J	9 J
methylene chloride	6	3 J	6 J	3 J	3 J
toluene	0.8 J	ND	0.9 J	ND	ND

Notes:

J = reported between PQL and MDL
 MEK = 2-butanone
 mg/kg = milligrams per kilogram
 ND = non-detect
 TPH = total petroleum hydrocarbons
 µg/kg = micrograms per kilogram
 µg/L = micrograms per liter
 VOC = volatile organic compound

Data Qualifiers:

J = estimated value



SB2

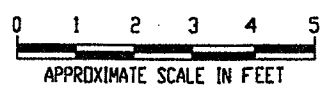
Sample Location		SB2		
Analyte		0' bgs	2' bgs	2' bgs (dup)
Gas	mg/kg	0.05 J	0.03 J	0.04 J
Diesel	mg/kg	23	ND	ND
Motor oil	mg/kg	140	14	10 J
MEK	ug/kg	ND	ND	ND
Acetone	ug/kg	7 J	9 J	9 J
Methylene	ug/kg	6 J	3 J	3 J
Toluene	ug/kg	0.9J	ND	ND

SB1

Sample Location		SB1	
Analyte		0' bgs	2' bgs
Gas	mg/kg	0.04 J	0.03 J
Diesel	mg/kg	5 J	ND
Motor oil	mg/kg	62	6 J
MEK	ug/kg	7 J	ND
Acetone	ug/kg	34 J	12 J
Methylene	ug/kg	6	3 J
Toluene	ug/kg	0.8 J	ND

LEGEND

SB1 SOIL BORING LOCATION WITH
▲ IDENTIFICATION NUMBER



MCAS EL TORO ELTORO, CALIFORNIA		SOIL SAMPLE RESULTS FOR TPH AND DETECTED VOCs SA/NAVY EL TORO LOC MCAS El Toro, California	FIGURE 2-1
CDM Federal Programs Corporation	DATE: 11/01		
	FN: 003_2-1		
	PROJECT NO. 1801-003		
MODIFIED BY: <i>J. Brown</i>			

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Section 3

Conclusions and Recommendations

The following information is based upon the presented soil sampling data from the SA:

- Two soil borings (SB1 and SB2) were advanced at the site with a total of four soil samples and one duplicate soil sample collected. Samples were collected at zero and two feet bgs at each of the boreholes.
- All detected VOC concentrations were below their respective residential PRGs and were all estimated concentrations except for methylene chloride in the surface sample at SB1.
- Surface soil samples had higher concentrations of TPH versus the 2-foot bgs soil sample. However, all concentrations are low level and do not require additional investigation.

Based on the information provided in this report and the absence of evidence of a significant release of potential contaminants at Site 07GN1, CDM Federal recommends that this report be submitted to the California Regional Water Quality Control Board, Santa Ana Region and that closure of Site 07GN1 be requested.

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Section 4

References

CDM Federal Programs Corporation. 2000. *Work Plan for Site Assessment at Building 392*. Final. October.

State of California. *Leaking Underground Fuel Tank Field Manual*. 1989

SWDIV. 2001. *Site 07GN1 Technical Memorandum*. September.

U.S. Environmental Protection Agency (USEPA). 2000. *Region IX Preliminary Remediation Goals*. November.

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Appendix A

Analytical Results

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

CDM Federal Programs Corp.

Attention: Matt Brookshire

3760 Convoy St., Ste 210

San Diego CA 92111

Tel: (858) 268-3383 Fax: (858) 268-9677

APCL Analytical Report

Service ID #: 801-016206

Collected by: REC

Collected on: 10/02/01

Received: 10/03/01

Extracted: 10/05/01

Tested: 10/05-09/01

Reported: 10/23/01

Sample Description: Soil and Water from MCAS El Toro

Project Description: 1801-003 Site 07GN1 Verification

Analysis of Water and Soil Samples

I. Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result
				07GN1-TB1
				01-06206-6
VOLATILE ORGANICS				
Dilution Factor				1
ACETONE	8260B	µg/L	100	<100
BENZENE	8260B	µg/L	5	<5
BROMOBENZENE	8260B	µg/L	5	<5
BROMOCHLOROMETHANE	8260B	µg/L	5	<5
BROMODICHLOROMETHANE	8260B	µg/L	5	<5
BROMOFORM	8260B	µg/L	5	<5
BROMOMETHANE	8260B	µg/L	5	<5
2-BUTANONE (MEK)	8260B	µg/L	100	<100
N-BUTYLBENZENE	8260B	µg/L	5	<5
SEC-BUTYLBENZENE	8260B	µg/L	5	<5
TERT-BUTYLBENZENE	8260B	µg/L	5	<5
CARBON DISULFIDE	8260B	µg/L	5	<5
CARBON TETRACHLORIDE	8260B	µg/L	5	<5
CHLOROBENZENE	8260B	µg/L	5	<5
CHLORODIBROMOMETHANE	8260B	µg/L	5	<5
CHLOROETHANE	8260B	µg/L	5	<5
CHLOROFORM	8260B	µg/L	5	<5
CHLOROMETHANE	8260B	µg/L	5	<5
2-CHLOROTOLUENE	8260B	µg/L	5	<5
4-CHLOROTOLUENE	8260B	µg/L	5	<5
1,2-DIBROMO-3-CHLOROPROPANE	8260B	µg/L	5	<5
1,2-DIBROMOETHANE (EDB)	8260B	µg/L	5	<5
DIBROMOMETHANE	8260B	µg/L	5	<5
1,2-DICHLOROBENZENE	8260B	µg/L	5	<5
1,3-DICHLOROBENZENE	8260B	µg/L	5	<5
1,4-DICHLOROBENZENE	8260B	µg/L	5	<5
DICHLORODIFLUOROMETHANE	8260B	µg/L	5	<5
1,1-DICHLOROETHANE	8260B	µg/L	5	<5
1,2-DICHLOROETHANE	8260B	µg/L	5	<5
1,1-DICHLOROETHENE	8260B	µg/L	5	<5
CIS-1,2-DICHLOROETHENE	8260B	µg/L	5	<5
TRANS-1,2-DICHLOROETHENE	8260B	µg/L	5	<5
1,2-DICHLOROPROPANE	8260B	µg/L	5	<5

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				07GN1-TB1	
				01-06206-6	
1,3-DICHLOROPROPANE	8260B	µg/L	5	< 5	
2,2-DICHLOROPROPANE	8260B	µg/L	5	< 5	
1,1-DICHLOROPROPENE	8260B	µg/L	5	< 5	
CIS-1,3-DICHLOROPROPENE	8260B	µg/L	5	< 5	
TRANS-1,3-DICHLOROPROPENE	8260B	µg/L	5	< 5	
ETHYLBENZENE	8260B	µg/L	5	< 5	
HEXACHLOROBUTADIENE	8260B	µg/L	5	< 5	
ISOPROPYLBENZENE (CUMENE)	8260B	µg/L	5	< 5	
P-ISOPROPYLTOLUENE	8260B	µg/L	5	< 5	
METHYLENE CHLORIDE	8260B	µg/L	5	1J	
4-METHYL-2-PENTANONE (MIBK)	8260B	µg/L	50	< 50	
METHYL-T-BUTYL ETHER (MTBE)	8260B	µg/L	10	< 10	
NAPHTHALENE	8260B	µg/L	5	< 5	
N-PROPYLBENZENE	8260B	µg/L	5	< 5	
STYRENE	8260B	µg/L	5	< 5	
1,1,1,2-TETRACHLOROETHANE	8260B	µg/L	5	< 5	
1,1,2,2-TETRACHLOROETHANE	8260B	µg/L	5	< 5	
TETRACHLOROETHENE	8260B	µg/L	5	< 5	
TOLUENE	8260B	µg/L	5	< 5	
1,2,3-TRICHLOROBENZENE	8260B	µg/L	5	< 5	
1,2,4-TRICHLOROBENZENE	8260B	µg/L	5	< 5	
1,1,1-TRICHLOROETHANE	8260B	µg/L	5	< 5	
1,1,2-TRICHLOROETHANE	8260B	µg/L	5	< 5	
TRICHLOROETHENE	8260B	µg/L	5	< 5	
TRICHLOROFLUOROMETHANE	8260B	µg/L	5	< 5	
1,2,3-TRICHLOROPROPANE	8260B	µg/L	5	< 5	
1,2,4-TRIMETHYLBENZENE	8260B	µg/L	5	< 5	
1,3,5-TRIMETHYLBENZENE	8260B	µg/L	5	< 5	
VINYL CHLORIDE	8260B	µg/L	5	< 5	
O-XYLENE	8260B	µg/L	5	< 5	
M/P-XYLENE	8260B	µg/L	5	< 5	

APCL Analytical Report

II. Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result	
				07GN1-10/2001-SB1-0 01-06206-1	07GN1-10/2001-SB1-2 01-06206-2
MOISTURE	ASTM-D2216	%Moisture	0.5	2.8	5.8
Dilution Factor				1	1
TPH: GASOLINE	M8015V	mg/kg	1	0.04J	0.03J
Dilution Factor				1	1
TPH: DIESEL	M8015E	mg/kg	10	5J	<11
Dilution Factor				1	1
MOTOR OIL	M8015E	mg/kg	10	62	6J
VOLATILE ORGANICS					
Dilution Factor				1	1
ACETONE	8260B	µg/kg	100	34J	12J
BENZENE	8260B	µg/kg	5	<5.1	<5.3
BROMOBENZENE	8260B	µg/kg	5	<5.1	<5.3
BROMOCHLOROMETHANE	8260B	µg/kg	5	<5.1	<5.3
BROMODICHLOROMETHANE	8260B	µg/kg	5	<5.1	<5.3
BROMOFORM	8260B	µg/kg	5	<5.1	<5.3
BROMOMETHANE	8260B	µg/kg	5	<5.1	<5.3
2-BUTANONE (MEK)	8260B	µg/kg	100	7J	<110
N-BUTYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
SEC-BUTYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
TERT-BUTYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
CARBON DISULFIDE	8260B	µg/kg	5	<5.1	<5.3
CARBON TETRACHLORIDE	8260B	µg/kg	5	<5.1	<5.3
CHLOROBENZENE	8260B	µg/kg	5	<5.1	<5.3
CHLORODIBROMOMETHANE	8260B	µg/kg	5	<5.1	<5.3
CHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
CHLOROFORM	8260B	µg/kg	5	<5.1	<5.3
CHLOROMETHANE	8260B	µg/kg	5	<5.1	<5.3
2-CHLOROTOLUENE	8260B	µg/kg	5	<5.1	<5.3
4-CHLOROTOLUENE	8260B	µg/kg	5	<5.1	<5.3
1,2-DIBROMO-3-CHLOROPROPANE	8260B	µg/kg	5	<5.1	<5.3
1,2-DIBROMOETHANE (EDB)	8260B	µg/kg	5	<5.1	<5.3
DIBROMOMETHANE	8260B	µg/kg	5	<5.1	<5.3
1,2-DICHLOROBENZENE	8260B	µg/kg	5	<5.1	<5.3
1,3-DICHLOROBENZENE	8260B	µg/kg	5	<5.1	<5.3
1,4-DICHLOROBENZENE	8260B	µg/kg	5	<5.1	<5.3
DICHLORODIFLUOROMETHANE	8260B	µg/kg	5	<5.1	<5.3
1,1-DICHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
1,2-DICHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
1,1-DICHLOROETHENE	8260B	µg/kg	5	<5.1	<5.3
CIS-1,2-DICHLOROETHENE	8260B	µg/kg	5	<5.1	<5.3
TRANS-1,2-DICHLOROETHENE	8260B	µg/kg	5	<5.1	<5.3
1,2-DICHLOROPROPANE	8260B	µg/kg	-5	<5.1	<5.3

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				07GN1-10/2001-SB1-0	07GN1-10/2001-SB1-2
				01-06206-1	01-06206-2
1,3-DICHLOROPROPANE	8260B	µg/kg	5	<5.1	<5.3
2,2-DICHLOROPROPANE	8260B	µg/kg	5	<5.1	<5.3
1,1-DICHLOROPROPENE	8260B	µg/kg	5	<5.1	<5.3
CIS-1,3-DICHLOROPROPENE	8260B	µg/kg	5	<5.1	<5.3
TRANS-1,3-DICHLOROPROPENE	8260B	µg/kg	5	<5.1	<5.3
ETHYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
HEXACHLOROBUTADIENE	8260B	µg/kg	5	<5.1	<5.3
ISOPROPYLBENZENE (CUMENE)	8260B	µg/kg	5	<5.1	<5.3
P-ISOPROPYLTOLUENE	8260B	µg/kg	5	<5.1	<5.3
METHYLENE CHLORIDE	8260B	µg/kg	5	6	3J
4-METHYL-2-PENTANONE (MIBK)	8260B	µg/kg	50	<51	<53
METHYL-T-BUTYL ETHER (MTBE)	8260B	µg/kg	10	<10	<11
NAPHTHALENE	8260B	µg/kg	5	<5.1	<5.3
N-PROPYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
STYRENE	8260B	µg/kg	5	<5.1	<5.3
1,1,1,2-TETRACHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
1,1,2,2-TETRACHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
TETRACHLOROETHENE	8260B	µg/kg	5	<5.1	<5.3
TOLUENE	8260B	µg/kg	5	0.8J	<5.3
1,2,3-TRICHLOROBENZENE	8260B	µg/kg	5	<5.1	<5.3
1,2,4-TRICHLOROBENZENE	8260B	µg/kg	5	<5.1	<5.3
1,1,1-TRICHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
1,1,2-TRICHLOROETHANE	8260B	µg/kg	5	<5.1	<5.3
TRICHLOROETHENE	8260B	µg/kg	5	<5.1	<5.3
TRICHLOROFLUOROMETHANE	8260B	µg/kg	5	<5.1	<5.3
1,2,3-TRICHLOROPROPANE	8260B	µg/kg	5	<5.1	<5.3
1,2,4-TRIMETHYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
1,3,5-TRIMETHYLBENZENE	8260B	µg/kg	5	<5.1	<5.3
VINYL CHLORIDE	8260B	µg/kg	5	<5.1	<5.3
O-XYLENE	8260B	µg/kg	5	<5.1	<5.3
M/P-XYLENE	8260B	µg/kg	5	<5.1	<5.3

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				07GN1-10/2001-SB2-0	07GN1-10/2001-SB2-2
				01-06206-3	01-06206-4
MOISTURE	ASTM-D2216	%Moisture	0.5	20.8	7.7
Dilution Factor				1	1
TPH: GASOLINE	M8015V	mg/kg	1	0.05J	0.03J
Dilution Factor				1	1
TPH: DIESEL	M8015E	mg/kg	10	23	<11
Dilution Factor				1	1
MOTOR OIL	M8015E	mg/kg	10	140	14
VOLATILE ORGANICS					
Dilution Factor				1	1
ACETONE	8260B	µg/kg	100	7J	9J
BENZENE	8260B	µg/kg	5	<6.3	<5.4
BROMOBENZENE	8260B	µg/kg	5	<6.3	<5.4
BROMOCHLOROMETHANE	8260B	µg/kg	5	<6.3	<5.4
BROMODICHLOROMETHANE	8260B	µg/kg	5	<6.3	<5.4
BROMOFORM	8260B	µg/kg	5	<6.3	<5.4
BROMOMETHANE	8260B	µg/kg	5	<6.3	<5.4
2-BUTANONE (MEK)	8260B	µg/kg	100	<130	<110
N-BUTYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
SEC-BUTYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
TERT-BUTYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
CARBON DISULFIDE	8260B	µg/kg	5	<6.3	<5.4
CARBON TETRACHLORIDE	8260B	µg/kg	5	<6.3	<5.4
CHLOROBENZENE	8260B	µg/kg	5	<6.3	<5.4
CHLORODIBROMOMETHANE	8260B	µg/kg	5	<6.3	<5.4
CHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
CHLOROFORM	8260B	µg/kg	5	<6.3	<5.4
CHLOROMETHANE	8260B	µg/kg	5	<6.3	<5.4
2-CHLOROTOLUENE	8260B	µg/kg	5	<6.3	<5.4
4-CHLOROTOLUENE	8260B	µg/kg	5	<6.3	<5.4
1,2-DIBROMO-3-CHLOROPROPANE	8260B	µg/kg	5	<6.3	<5.4
1,2-DIBROMOETHANE (EDB)	8260B	µg/kg	5	<6.3	<5.4
DIBROMOMETHANE	8260B	µg/kg	5	<6.3	<5.4
1,2-DICHLOROBENZENE	8260B	µg/kg	5	<6.3	<5.4
1,3-DICHLOROBENZENE	8260B	µg/kg	5	<6.3	<5.4
1,4-DICHLOROBENZENE	8260B	µg/kg	5	<6.3	<5.4
DICHLORODIFLUOROMETHANE	8260B	µg/kg	5	<6.3	<5.4
1,1-DICHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
1,2-DICHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
1,1-DICHLOROETHENE	8260B	µg/kg	5	<6.3	<5.4
CIS-1,2-DICHLOROETHENE	8260B	µg/kg	5	<6.3	<5.4
TRANS-1,2-DICHLOROETHENE	8260B	µg/kg	5	<6.3	<5.4
1,2-DICHLOROPROPANE	8260B	µg/kg	5	<6.3	<5.4
1,3-DICHLOROPROPANE	8260B	µg/kg	5	<6.3	<5.4

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				07GN1-10/2001-SB2-0	07GN1-10/2001-SB2-2
				01-06206-3	01-06206-4
2,2-DICHLOROPROPANE	8260B	µg/kg	5	<6.3	<5.4
1,1-DICHLOROPROPENE	8260B	µg/kg	5	<6.3	<5.4
CIS-1,3-DICHLOROPROPENE	8260B	µg/kg	5	<6.3	<5.4
TRANS-1,3-DICHLOROPROPENE	8260B	µg/kg	5	<6.3	<5.4
ETHYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
HEXACHLOROBUTADIENE	8260B	µg/kg	5	<6.3	<5.4
ISOPROPYLBENZENE (CUMENE)	8260B	µg/kg	5	<6.3	<5.4
P-ISOPROPYLTOLUENE	8260B	µg/kg	5	<6.3	<5.4
METHYLENE CHLORIDE	8260B	µg/kg	5	6J	3J
4-METHYL-2-PENTANONE (MIBK)	8260B	µg/kg	50	<63	<54
METHYL-T-BUTYL ETHER (MTBE)	8260B	µg/kg	10	<13	<11
NAPHTHALENE	8260B	µg/kg	5	<6.3	<5.4
N-PROPYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
STYRENE	8260B	µg/kg	5	<6.3	<5.4
1,1,1,2-TETRACHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
1,1,2,2-TETRACHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
TETRACHLOROETHENE	8260B	µg/kg	5	<6.3	<5.4
TOLUENE	8260B	µg/kg	5	0.9J	<5.4
1,2,3-TRICHLOROBENZENE	8260B	µg/kg	5	<6.3	<5.4
1,2,4-TRICHLOROBENZENE	8260B	µg/kg	5	<6.3	<5.4
1,1,1-TRICHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
1,1,2-TRICHLOROETHANE	8260B	µg/kg	5	<6.3	<5.4
TRICHLOROETHENE	8260B	µg/kg	5	<6.3	<5.4
TRICHLOROFLUOROMETHANE	8260B	µg/kg	5	<6.3	<5.4
1,2,3-TRICHLOROPROPANE	8260B	µg/kg	5	<6.3	<5.4
1,2,4-TRIMETHYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
1,3,5-TRIMETHYLBENZENE	8260B	µg/kg	5	<6.3	<5.4
VINYL CHLORIDE	8260B	µg/kg	5	<6.3	<5.4
O-XYLENE	8260B	µg/kg	5	<6.3	<5.4
M/P-XYLENE	8260B	µg/kg	5	<6.3	<5.4

Component Analyzed	Method	Unit	PQL	Analysis Result	
				07GN1-10/2001-SB2-2D	
				01-06206-5	
MOISTURE	ASTM-D2216	%Moisture	0.5	7.6	
Dilution Factor				1	
TPH: GASOLINE	M8015V	mg/kg	1	0.04J	
Dilution Factor				1	
TPH: DIESEL	M8015E	mg/kg	10	<11	
Dilution Factor				1	
MOTOR OIL	M8015E	mg/kg	10	10J	

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result
				07GN1-10/2001-SB2-2D 01-06206-5
VOLATILE ORGANICS				
Dilution Factor				1
ACETONE	8260B	µg/kg	100	9J
BENZENE	8260B	µg/kg	5	< 5.4
BROMOBENZENE	8260B	µg/kg	5	< 5.4
BROMOCHLOROMETHANE	8260B	µg/kg	5	< 5.4
BROMODICHLOROMETHANE	8260B	µg/kg	5	< 5.4
BROMOFORM	8260B	µg/kg	5	< 5.4
BROMOMETHANE	8260B	µg/kg	5	< 5.4
2-BUTANONE (MEK)	8260B	µg/kg	100	< 110
N-BUTYLBENZENE	8260B	µg/kg	5	< 5.4
SEC-BUTYLBENZENE	8260B	µg/kg	5	< 5.4
TERT-BUTYLBENZENE	8260B	µg/kg	5	< 5.4
CARBON DISULFIDE	8260B	µg/kg	5	< 5.4
CARBON TETRACHLORIDE	8260B	µg/kg	5	< 5.4
CHLOROBENZENE	8260B	µg/kg	5	< 5.4
CHLORODIBROMOMETHANE	8260B	µg/kg	5	< 5.4
CHLOROETHANE	8260B	µg/kg	5	< 5.4
CHLOROFORM	8260B	µg/kg	5	< 5.4
CHLOROMETHANE	8260B	µg/kg	5	< 5.4
2-CHLOROTOLUENE	8260B	µg/kg	5	< 5.4
4-CHLOROTOLUENE	8260B	µg/kg	5	< 5.4
1,2-DIBROMO-3-CHLOROPROPANE	8260B	µg/kg	5	< 5.4
1,2-DIBROMOETHANE (EDB)	8260B	µg/kg	5	< 5.4
DIBROMOMETHANE	8260B	µg/kg	5	< 5.4
1,2-DICHLOROBENZENE	8260B	µg/kg	5	< 5.4
1,3-DICHLOROBENZENE	8260B	µg/kg	5	< 5.4
1,4-DICHLOROBENZENE	8260B	µg/kg	5	< 5.4
DICHLORODIFLUOROMETHANE	8260B	µg/kg	5	< 5.4
1,1-DICHLOROETHANE	8260B	µg/kg	5	< 5.4
1,2-DICHLOROETHANE	8260B	µg/kg	5	< 5.4
1,1-DICHLOROETHENE	8260B	µg/kg	5	< 5.4
CIS-1,2-DICHLOROETHENE	8260B	µg/kg	5	< 5.4
TRANS-1,2-DICHLOROETHENE	8260B	µg/kg	5	< 5.4
1,2-DICHLOROPROPANE	8260B	µg/kg	5	< 5.4
1,3-DICHLOROPROPANE	8260B	µg/kg	5	< 5.4
2,2-DICHLOROPROPANE	8260B	µg/kg	5	< 5.4
1,1-DICHLOROPROPENE	8260B	µg/kg	5	< 5.4
CIS-1,3-DICHLOROPROPENE	8260B	µg/kg	5	< 5.4
TRANS-1,3-DICHLOROPROPENE	8260B	µg/kg	5	< 5.4
ETHYLBENZENE	8260B	µg/kg	5	< 5.4

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result
				07GN1-10/2001-SB2-2D 01-06206-5
HEXACHLOROBUTADIENE	8260B	µg/kg	5	<5.4
ISOPROPYLBENZENE (CUMENE)	8260B	µg/kg	5	<5.4
P-ISOPROPYLTOLUENE	8260B	µg/kg	5	<5.4
METHYLENE CHLORIDE	8260B	µg/kg	5	3J
4-METHYL-2-PENTANONE (MIBK)	8260B	µg/kg	50	<5.4
METHYL-T-BUTYL ETHER (MTBE)	8260B	µg/kg	10	<11
NAPHTHALENE	8260B	µg/kg	5	<5.4
N-PROPYLBENZENE	8260B	µg/kg	5	<5.4
STYRENE	8260B	µg/kg	5	<5.4
1,1,1,2-TETRACHLOROETHANE	8260B	µg/kg	5	<5.4
1,1,2,2-TETRACHLOROETHANE	8260B	µg/kg	5	<5.4
TETRACHLOROETHENE	8260B	µg/kg	5	<5.4
TOLUENE	8260B	µg/kg	5	<5.4
1,2,3-TRICHLOROBENZENE	8260B	µg/kg	5	<5.4
1,2,4-TRICHLOROBENZENE	8260B	µg/kg	5	<5.4
1,1,1-TRICHLOROETHANE	8260B	µg/kg	5	<5.4
1,1,2-TRICHLOROETHANE	8260B	µg/kg	5	<5.4
TRICHLOROETHENE	8260B	µg/kg	5	<5.4
TRICHLOROFLUOROMETHANE	8260B	µg/kg	5	<5.4
1,2,3-TRICHLOROPROPANE	8260B	µg/kg	5	<5.4
1,2,4-TRIMETHYLBENZENE	8260B	µg/kg	5	<5.4
1,3,5-TRIMETHYLBENZENE	8260B	µg/kg	5	<5.4
VINYL CHLORIDE	8260B	µg/kg	5	<5.4
O-XYLENE	8260B	µg/kg	5	<5.4
M/P-XYLENE	8260B	µg/kg	5	<5.4

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit.

"-": Analysis is not required.

J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted,

Dominic Lau

Laboratory Director

Applied P & Ch Laboratory

A P C L

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen

Page 1 of 1

Client: CDM Federal Programs Corporation Contact: Matt Brookshire

Tel #: 858-268-3383 Fax #: 858-268-9677

Address: 3760 Conway Street, Suite 210 City: San Diego

State: CA Zip code: 92111

Bill to: CDM Federal - Denver Colorado

Project Name/Code **Site 076N1 Verification** Job # **100503** P.O. #

Project Address **MCASBITDRO** APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: REC

Analysis Items

White - With report

Yellow - Lab copy

Pink - Originator

Remarks

[illegible]

6206

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☒ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA (E, C or D); ☐ Other (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APGL ☐ Hold for _____ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # 12 Temperature: ☐ Room ☐ Cold (°C).

Relinquished	by <i>REC</i>	Date/Time 10/3/01 /	Received	by <i>Boy Agustin</i>	Date/Time 10-3-01 / 14:00 <i>45</i>
Relinquished	by	Date/Time /	Received	by	Date/Time /

APCL USE ONLY Service #

Note:

 Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

APCL Form 6-101, Ver. 4.0, Dec. 20, 1994.

Root-File: CUST.DATA.LAB\CHAIN_ROOT.TEX Pj-File: CUST.DATA.LAB\CHAIN.TEX

PAGE.02

yov 15 2001 16:10

Case Narrative

Project: Site 07GN1 Verification/MCAS El Toro/1801-003

For CDM Federal Programs Corp.

APCL Service No: 01-6206

1. Sample Identification

The sample identifications are listed in the following table:

CDM Federal Programs Corp. Sample ID	APCL Sample ID
07GN1-10/2001-SB1-0	01-06206-1
07GN1-10/2001-SB1-2	01-06206-2
07GN1-10/2001-SB2-0	01-06206-3
07GN1-10/2001-SB2-2	01-06206-4
07GN1-10/2001-SB2-2D	01-06206-5
07GN1-TB1	01-06206-6

2. Analytical Methodology

Samples are analyzed by EPA methods

8260B (Volatile organics),

M8015V (Gasoline),

M8015E (TPH: Diesel),

M8015E (TPH: Motor Oil),

ASTM-D2216 (Moisture, percent in soil),

3. Holding Time

All samples were extracted, digested and analyzed within the holding times defined by the appropriate EPA methods of the analyses.

4. Preservation

All samples were preserved and stored according to the appropriate EPA methods.

5. Tele-log

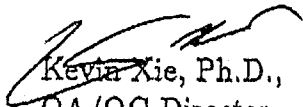
None.

6. Anomaly

None.

"I certify that these data are technically accurate, complete, and in compliance with the terms and conditions of the contract, for other than the conditions detailed above. Release of the data contained in the hardcopy data package and its electronic data deliverable submitted on diskette had been authorized by the Laboratory Manager or her/his designee, as verified by the following signature."

Respectfully submitted,


Kevin Xie, Ph.D.,
QA/QC Director
Applied P & Ch Laboratory

TRANSMITTAL

Date: 16 Nov 2001

From: Lynn Marie Hornecker
MCAS El Toro

To: Diane Silva
Code 01LS.DS

Subj: CERCLA Administrative Record Materials
Marine Corps Air Station, El Toro

Installation: Marine Corps Air Station, El Toro

UIC Number: M60050

Document Title (or subject): Summary Report Site 07GN1

Author: Lynn Marie Hornecker

Recipient: Patricia Hannon, RWQCB

Record Date: 16 Nov 2001

Approximate Number of Pages: 100

EPA Category: 01.1

Sites: Site 07GN1

(located with IRP Site 7)

Key Words: petroleum

Contract: N/A

CTO Number: N/A

Note Site 07GN1 is located
within IRP Site 7.